

AIWA®

SERVICE MANUAL

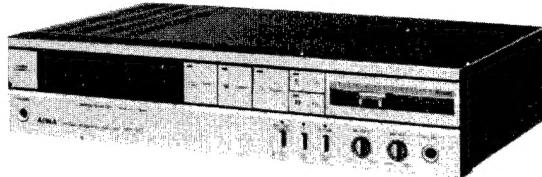
S/M Code No. 84-002
DATA OF ISSUE 2/1984

TYPE. H,HB,UB,E,EB,K,KB,G

**STEREO INTEGRATED
AMPLIFIER**

MODEL NO.

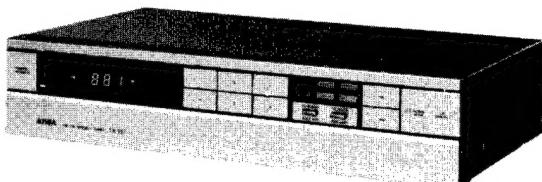
MX-90



FM/AM STEREO TUNER

MODEL NO.

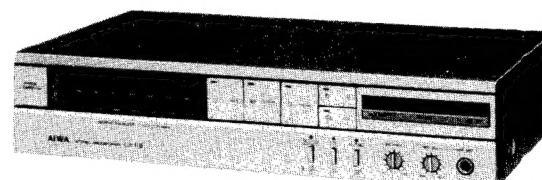
TX-110



STEREO PREAMPLIFIER

MODEL NO.

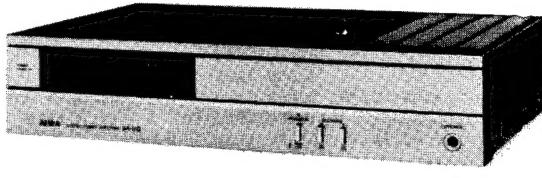
GX-110



**DC STEREO POWER
AMPLIFIER**

MODEL NO.

BX-110



SPECIFICATIONS

MX-90

Power source:	H, HB models AC 120V/220V/240V switchable, 50/60Hz	Total harmonic distortion: Less than 0.08% (1kHz, 30W, 8Ω)
	UB model AC 120V, 60Hz	Output bandwidth: 40Hz to 50kHz (Less than 0.5%)
	E, EB models AC 220V, 50/60Hz	Frequency response: [Both channels driven, 8Ω] 40Hz to 50kHz (+0.5/-3dB)
	K, KB, G models AC 240V, 50/60Hz	Residual noise: Less than AUX 5mV
Power consumption:	H, HB models 85W	Damping factor: More than 40 (1kHz 8Ω)
	UB model 70W	<PREAMPLIFIER> Signal to noise ratio:(Weighted)
	E, EB, K, KB, G models 160W	PHONO(MM) More than 8.2dB
Dimensions:	330(W)×71(H)×200 (D)mm (12.7/8"×2.5/8"×7.7 /8")	TUNER, AUX More than 9.0dB
Weight:	3.6kg (7.92 lbs.)	TAPE PLAY More than 9.0dB
<POWER AMPLIFIER>		D. S. L: 60Hz 18dB±3dB
Effective output power:	H, HB models 45W+45W(8Ω, EIAJ 5% 1kHz) E, EB, K, KB, G models 30W+30W(8Ω, T. H. D. 0.05%, 40Hz~20kHz) UB model only <FTC Rule> 35 Watts per channel, Min. RMS at 8 ohms, from 40Hz~ 20kHz, with no more than 0.2% Total Harmonic Distortion	RIAA deviation: ±0.5dB(30Hz~15kHz) Channel separation: More than 40dB Input jacks: (Sensitivity/input impedance): PHONO(MM) 3mV/4.7kΩ TUNER 150mV/4.7kΩ CD 150mV/4.7kΩ AUX 240mV/4.7kΩ TAPE 150mV/4.7kΩ MIC 1mV/5kΩ Output jacks: (Level/output impedance): TAPE 150mV/4.7kΩ SPEAKERS 8Ω~16Ω

TX-110

<GENERAL>		Frequency response: 30Hz~50kHz(+0.5/-3dB)
Power source:	H, HB models AC 120V/220V~240V Switchable, 50/60Hz	Separation: More than 3.5dB(at 1kHz)
	UB model AC 120V, 60Hz	Auto stop level: 30+5/0dB(at 98.0MHz)
	E, EB models AC 220V, 50/60Hz	Hi-Blend separation: 13±5dB(at 1kHz, 98.0MHz)
	K, KB, G models AC 240V, 50/60Hz	<AM TUNER SECTION>
Power consumption:	10W	Frequency ranges: MW 530~1605kHz Dimensions: 330(W)×71(H)×200(D)mm
Dimensions:	(13"×2.3/4"×7.7/8")	LW 144~353kHz(E, EB, K, KB models only)
Weight:	1.9kg (4.18 lbs.)	Intermediate frequency: 450kHz
Output level:	FM 180mV AM 150mV	Sensitivity: MW 52±3dB (S/N 20dB, bar antenna)
<FM TUNER SECTION>		50±3dB (at 603kHz)
Frequency ranges:	87.5~108.0MHz	LW 50±3dB (at 999, 1404kHz)
Intermediate frequency:	10.7MHz	LW 62±3dB (at 144, 200, 353kHz) (E, EB, K, KB models only)
IHF sensitivity: (THD 3%)	H, HB, UB models 7±3dB(at 87.5, 98.0, 108.0MHz)	Image frequency interference ratio: MW More than 40dB (at 999kHz)
	E, EB, K, KB, G models 7±3dB(at 88.0, 98.0, 108.0MHz)	LW More than 40dB (at 200kHz)(E, EB, K, KB models only)
50dB quieting sensitivity:	Less than 36dB(at 98.0MHz)	Intermediate frequency interference ratio: MW More than 40dB (at 999kHz)
Image frequency interference ratio:	More than 45dB(at 98.0MHz)	MW More than 2.5dB
Intermediate frequency interference ratio:	More than 72dB(at 98.0MHz)	Selectivity: MW Less than 1.0% (at 999kHz)
SN ratio: (MONO)	More than 74dB(98.0MHz)	Distortion: MW 5.6±1.0dB (at 999 kHz)
(Weighted)	More than 74dB(98.0MHz)	AGC characteristic: MW More than 4.8dB (100dB input)
	More than 66dB(98.0MHz)	SN ratio: MW 5.5±1.0dB
Total harmonic distortion: (Input level 60dB)(MONO)	Less than 0.3%(at 98.0MHz)	Auto stop level: LW 5.8±1.0dB (E, EB, K, KB models only)
	(STEREO)	Loop antenna: H, HB, UB, G models MW 300μV/m
	Less than 0.4%(at 98.0MHz)	E, EB, K, KB models MW 400μV/m
AM suppression ratio:	More than 50dB(at 98.0MHz)	LW 800μV/m
Muting response:	30±3dB(at 98.0MHz)	
Effective selectivity:	More than 70dB(at 400kHz)	
Capture ratio:	Less than 3dB(at 98.0MHz)	

GX-110

Power source: H, HB models
 AC 120/220/240V
 Switchable, 50/60Hz
 UB model
 AC 120V, 60Hz
 E, EB models
 AC 220V, 50/60Hz
 K, KB, G models
 AC 240V, 50/60Hz
 10W
 330(W)×71(H)×200(D)mm
 (12-7/8"×2-5/8"×7-7/8")
 2.1kg(4.62lbs.)
 PHONO(MM), TUNER, AUX
 CD, TAPE, INPUT
 MIC 7.6±3dB
 Less than 0.5%
 (1kHz, 0.75V)
 3.5~5.0, 0.000Hz(+0.5/-3dB)
 ±0.5dB(30Hz~15kHz, 0dB)
 Muting level:
 2.0±3dB
 DSL response:
 1.8±3dB(5.0Hz)
 PHONO MAX.
 allowance input:
 1.00±2.0mV(REC OUT)
 Graphic EQ.
 +1.0±3dB

response: -1.0±3dB
 (40Hz, 125Hz, 330Hz,
 1kHz, 2.5kHz, 6.3kHz,
 15kHz)
 Channel separation: PHONO, AUX, TUNER
 (1kHz) 5.0±2dB
 Input sensitivity/impedance:
 PHONO(MM) 3mV/4.7kΩ
 TUNER, CD 1.80mV/4.7kΩ
 TAPE 1.80mV/4.7kΩ
 AUX 3.00mV/4.7kΩ
 MIC 1mV/1.0kΩ
 Output/impedance:
 TAPE 1.50mV/4.7kΩ
 Headphones 8Ω~1.6Ω
 Speakers 8Ω~1.6Ω
 < WIRELESS TRANSMITTER SECTION >
 Power source: DC 3V(SUM-3 "AA" cells
 Current consumption: Below 5.0mA(Balanced, during
 use); 3.0mA(When not in use)
 Dimensions: 6.3(W)×2.2(H)×141.5(D)mm
 (2-1/2"×7/8"×5-1/2")
 Weight: 1.00g(0.22lbs.)
 Transmission field:
 ±4.5°
 Transmission distance:
 approx. 6m(20 feet)
 Clock frequency: 3.8kHz±1%

BX-110

Power source: H, HB models
 AC 120/220/240V
 switchable, 50/60Hz
 UB model
 AC 120V, 60Hz
 E, EB models
 AC 220V, 50/60Hz
 K, KB, G models
 AC 240V, 50/60Hz
 H, HB models
 1.15W
 UB models
 1.00W
 E, EB, K, KB, G models
 2.70W
 Dimensions: 330(W)×71(H)×200(D)mm
 (12-7/8"×2-5/8"×7-7/8")
 Weight: 4.8kg(10.57lbs.)
 Power output: H, HB, E, EB, K, KB, G
 models
 6.0W+6.0W(8Ω, T. H. D.
 0.01%, 20Hz~20kHz)
 < FTC Rule UB model only>
 6.0Watts per channel, Min.
 RMS at 8Ω, from 20Hz~
 20kHz, with no more than
 0.02% Total Harmonic
 Distortion.

Distortion: Less than 0.008%
 Intermodulation distortion: Less than 0.02%(5.0W, 8Ω)
 Damping factor: More than 3.0
 S/N ratio: More than 110dB
 Frequency response: 1.0~5.0, 0.000Hz(--1dB)
 Output bandwidth: 1.0~5.0, 0.000Hz(Less than 0.05%)
 Residual noise: [Both channels driven, 8Ω]
 Input/impedance: Less than 1mV
 Output: 7.00mV/4.7kΩ
 A or B 8Ω~1.6Ω
 A + B 1.6Ω

• The specifications and external appearance of this set are subject to change without prior notice.

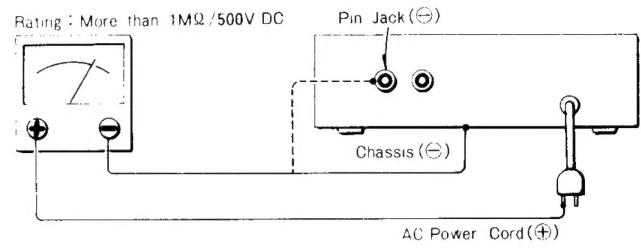
Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
 - * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
 - * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
 - * Set the Voltage Selector Switch to 240V, 220V, or 120V. According to your Local Voltage.

5. After repaired, the insulation resistance or leakage current shall be measured with $500 \pm 5\text{V D.C}$ and shall be not less than $1\text{M}\Omega$.

Measuring Point

Connect to Chassis or Outside \ominus of Pin Jack

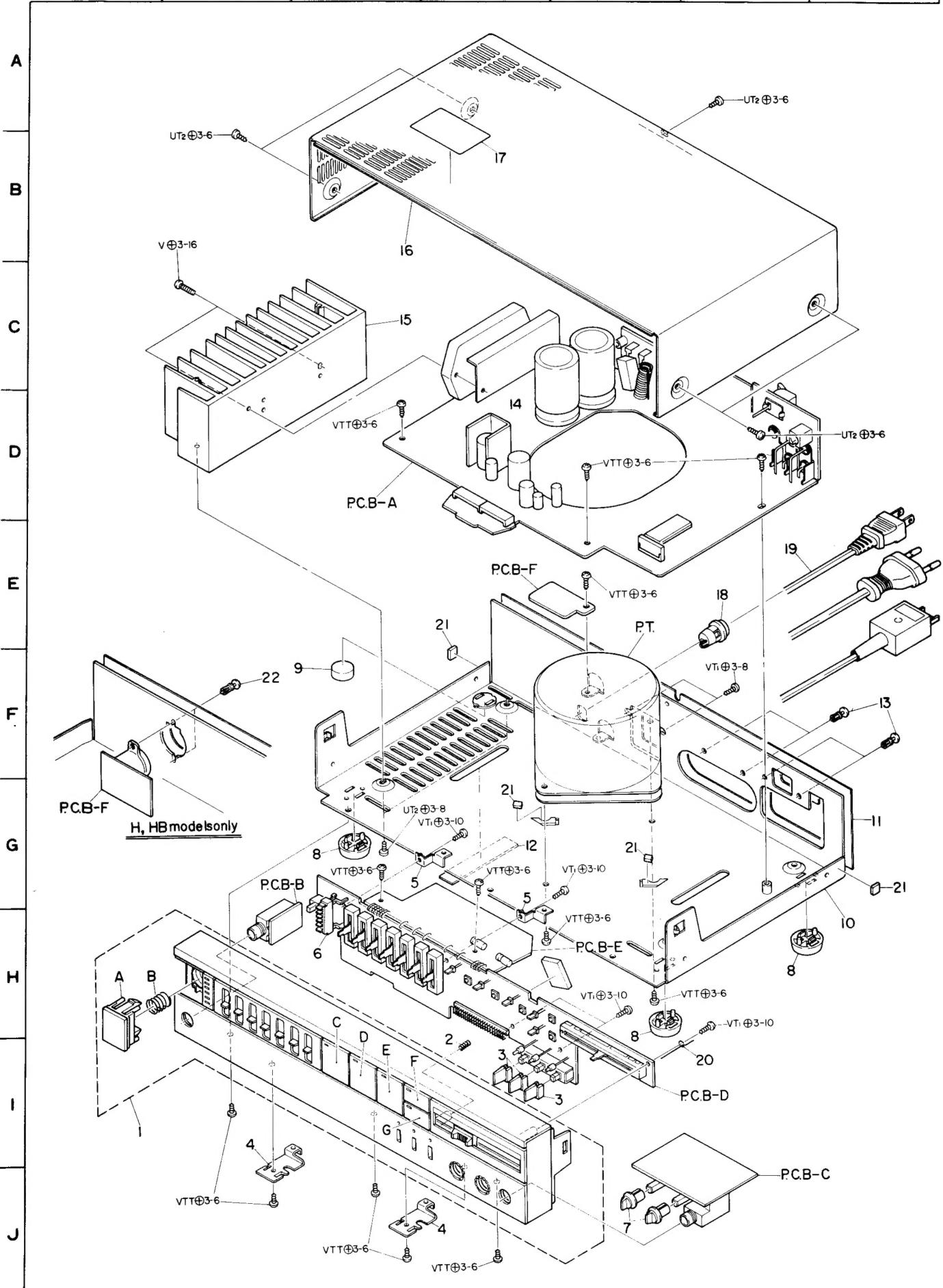


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MEMO

EXPLODED VIEW (MX-90)

1 2 3 4 5 6 7



PARTS LIST

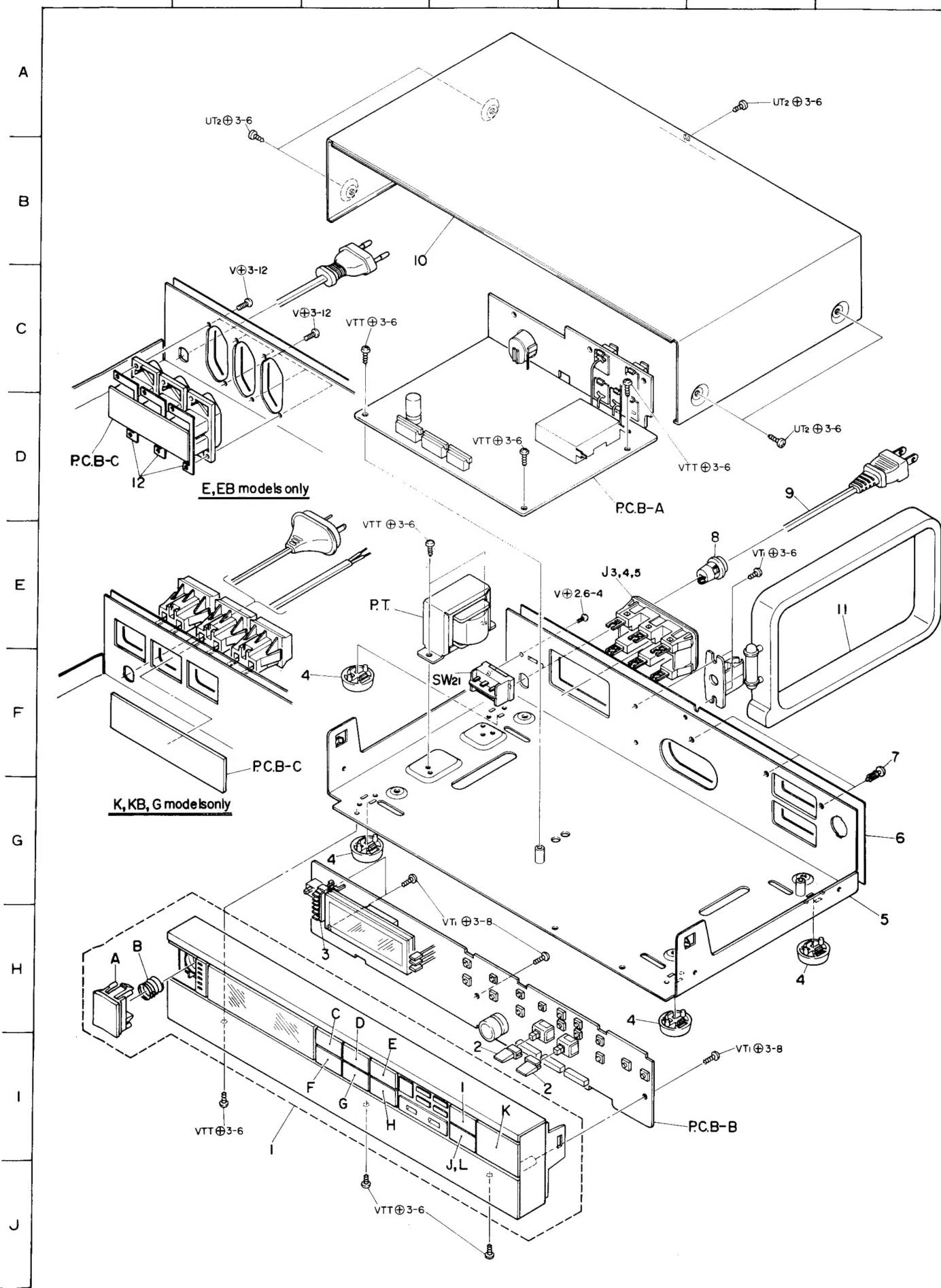
MECHANICAL PARTS (MX-90)

■ * mark in this part list shows exclusive part.
 ■ "★★★" shows unavailable Repair Part.

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	82-798-004-01		Front cabinet ass'y (H model only)	*	1	
	82-798-046-01		Front cabinet ass'y (E, K, G models only)	*	1	
	82-798-034-01		Front cabinet ass'y (HB, UB models only)	*	1	
	82-798-072-01		Front cabinet ass'y (EB, KB models only)	*	1	
A	82-798-036-11		POWER button ass'y (H, E, K, G models only)	*	1	
	82-798-062-01		POWER button ass'y (HB, UB, EB, KB models only)	*	1	
B	82-798-209-01		C-spring, POWER	*	1	
C	82-798-037-01		Tape hinge ass'y (H, E, K, G models only)	*	1	
	82-798-057-01		Tape hinge ass'y (HB, UB, EB, KB models only)	*	1	
D	82-798-040-01		Tuner hinge ass'y (H, E, K, G models only)	*	1	
	82-798-060-01		Tuner hinge ass'y (HB, UB, EB, KB models only)	*	1	
E	82-798-039-01		PHONO hinge ass'y (H, E, K, G models only)	*	1	
	82-798-059-01		PHONO hinge ass'y (HB, UB, EB, KB models only)	*	1	
F	82-798-041-01		CD hinge ass'y (H, E, K, G models only)	*	1	
	82-798-061-01		CD hinge ass'y (HB, UB, EB, KB models only)	*	1	
G	82-798-038-01		AUX hinge ass'y (H, E, K, G models only)	*	1	
	82-798-058-01		AUX hinge ass'y (HB, UB, EB, KB models only)	*	1	
2	82-197-212-01		C-spring, Earth	FX-90	1	
3	82-798-023-11		Push-button, MUT	*	3	
4	82-798-207-01		Holder, A	*	2	
5	82-798-206-01		Holder, G	*	2	
6	82-798-210-01		Guide B, LED	*	1	
7	82-798-043-01		Knob L (H, E, K, G models only)	*	2	
	82-798-070-01		Knob (HB, UB, EB, KB models only)	*	2	
8	87-085-186-01		Foot		3	
9	82-798-024-01		Rubber foot	*	1	
10	82-798-204-01		Amp. chassis ass'y (H, HB models only)	*	1	★★★
	82-798-202-01		Amp. chassis ass'y (UB, E, EB, K, KB, G models only)	*	1	★★★
11	82-798-026-01		Name plate, Jack (H model only)	*	1	★★★
	82-798-066-01		Name plate, Jack (HB model only)	*	1	★★★
	82-798-065-01		Name plate, Jack (UB model only)	*	1	★★★
	82-798-029-01		Name plate, Jack (E model only)	*	1	★★★
	82-798-067-01		Name plate, Jack (EB model only)	*	1	★★★
	82-798-030-01		Name plate, Jack (K model only)	*	1	★★★
	82-798-068-01		Name plate, Jack (KB model only)	*	1	★★★
	82-798-031-01		Name plate, Jack (G model only)	*	1	★★★
12	82-798-232-01		Sheet, IC	*	1	★★★
13	87-085-102-01		Nylon rivet 3.5-5.5		4	
14	82-798-208-01		Holder, IC	*	1	
15	82-798-601-11		Heat sink, Main	*	1	★★★
16	82-798-022-01		Cabinet, Steel (H, E, K, G models only)	*	1	
	82-798-050-01		Cabinet, Steel (HB, UB, EB, KB models only)	*	1	
17	87-057-642-01		Label, TEMP	MX-100	1	★★★
18	87-085-184-01		Cord bushing (H, HB, UB models only)		1	
	87-085-185-01		Cord bushing (E, EB, K, KB, G models only)		1	
19	87-034-962-01		AC power cord (H model only)		1	
	87-034-992-01		AC power cord (HB model only)		1	
	87-034-578-01		AC power cord (UB model only)		1	
	82-788-674-01		AC power cord (E, EB models only)		1	
	87-034-708-01		AC power cord (K, KB, G models only)		1	
20	82-798-212-01		T-spring, Earth	*	1	
21	82-798-208-01		G cushion	SA-P50	4	★★★
22	87-085-090-01		Nylon rivet 3.6.5 (H, HB models only)		2	

EXPLODED VIEW (TX-110)

1 2 3 4 5 6 7



PARTS LIST

MECHANICAL PARTS (TX-110)

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	82-799-004-01		Front cabinet ass'y (H model only)	*	1	
	82-799-036-01		Front cabinet ass'y (HB, UB models only)	*	1	
	82-799-005-01		Front cabinet ass'y (E, K, G models only)	*	1	
	82-799-074-01		Front cabinet ass'y (EB, KB models only)	*	1	
A	82-798-036-01		POWER button ass'y (H, E, K, G models only)	MX-90	1	
	82-798-062-01		POWER button ass'y (HB, UB, EB, KB models only)	MX-90	1	
B	82-798-209-01		C-spring, POWER	MX-90	1	
C	82-799-038-01		Hinge 1 ass'y (H, E, K, G models only)	*	1	
	82-799-061-01		Hinge 1 ass'y (HB, UB, EB, KB models only)	*	1	
D	82-799-039-01		Hinge 2 ass'y (H, E, K, G models only)	*	1	
	82-799-062-01		Hinge 2 ass'y (HB, UB, EB, KB models only)	*	1	
E	82-799-040-01		Hinge 3 ass'y (H, E, K, G models only)	*	1	
	82-799-063-01		Hinge 3 ass'y (HB, UB, EB, KB models only)	*	1	
F	82-799-041-01		Hinge 4 ass'y (H, E, K, G models only)	*	1	
	82-799-064-01		Hinge 4 ass'y (HB, UB, EB, KB models only)	*	1	
G	82-799-042-01		Hinge 5 ass'y (H, E, K, G models only)	*	1	
	82-799-065-01		Hinge 5 ass'y (HB, UB, EB, KB models only)	*	1	
H	82-799-043-01		Hinge 6 ass'y (H, E, K, G models only)	*	1	
	82-799-066-01		Hinge 6 ass'y (HB, UB, EB, KB models only)	*	1	
I	82-799-044-01		Hinge FM ass'y (H, E, K, G models only)	*	1	
	82-799-067-01		Hinge FM ass'y (HB, UB, EB, KB models only)	*	1	
J	82-799-045-01		Hinge AM ass'y (H model only)	*	1	
	82-799-068-01		Hinge AM ass'y (HB, UB models only)	*	1	
K	82-799-046-01		Hinge UP ass'y (H, E, K, G models only)	*	1	
	82-799-070-01		Hinge UP ass'y (HB, UB, EB, KB models only)	*	1	
L	82-799-050-01		Hinge MW ass'y (E, K, G models only)	*	1	
	82-799-069-01		Hinge MW ass'y (EB, KB models only)	*	1	
2	82-799-025-01		Push-button	*	2	
3	82-798-210-01		Guide, LED	MX-90	1	
4	87-085-186-01		Foot		4	
5	82-799-204-01		Amp. chassis ass'y (H, HB models only)	*	1	★ ★ ★
	82-799-202-01		Amp. chassis ass'y (UB model only)	*	1	★ ★ ★
	82-799-206-01		Amp. chassis ass'y (E, EB models only)	*	1	★ ★ ★
	82-799-212-01		Amp. chassis ass'y (K, KB models only)	*	1	★ ★ ★
	82-799-208-01		Amp. chassis ass'y (G model only)	*	1	★ ★ ★
6	82-799-028-01		Name plate, Jack (H model only)	*	1	★ ★ ★
	82-799-081-01		Name plate, Jack (HB model only)	*	1	★ ★ ★
	82-799-080-01		Name plate, Jack (UB model only)	*	1	★ ★ ★
	82-799-031-01		Name plate, Jack (E model only)	*	1	★ ★ ★
	82-799-082-01		Name plate, Jack (EB model only)	*	1	★ ★ ★
	82-799-032-01		Name plate, Jack (K model only)	*	1	★ ★ ★
	82-799-083-01		Name plate, Jack (KB model only)	*	1	★ ★ ★
	82-799-033-01		Name plate, Jack (G model only)	*	1	★ ★ ★
7	87-085-102-01		Nylon rivet 3.5-5.5		3	
8	87-085-184-01		Cord bushing (H, HB, UB models only)		1	
	87-085-185-01		Cord bushing (E, EB, K, KB, G models only)		1	
9	87-034-956-01		AC power cord (H model only)		1	
	87-034-958-01		AC power cord (HB model only)		1	
	87-034-578-01		AC power cord (UB model only)		1	
	87-034-877-01		AC power cord (E, EB models only)		1	
	87-034-975-01		AC power cord (K, KB models only)		1	
	87-034-892-01		AC power cord (G model only)		1	
10	82-799-026-01		Cabinet, Steel (H, E, K, G models only)	*	1	
	82-799-072-01		Cabinet, Steel (HB, UB, EB, KB models only)	*	1	
11	82-791-652-01		Loop antenna ass'y (H, E, K, G models only)	TX-70	1	
	82-795-670-01		Loop antenna ass'y (HB, UB, EB, KB models only)	RX-30	1	
12	82-773-216-01		Plate nut (E, EB models only)	AT-9500	3	

EXPLODED VIEW (GX-110)

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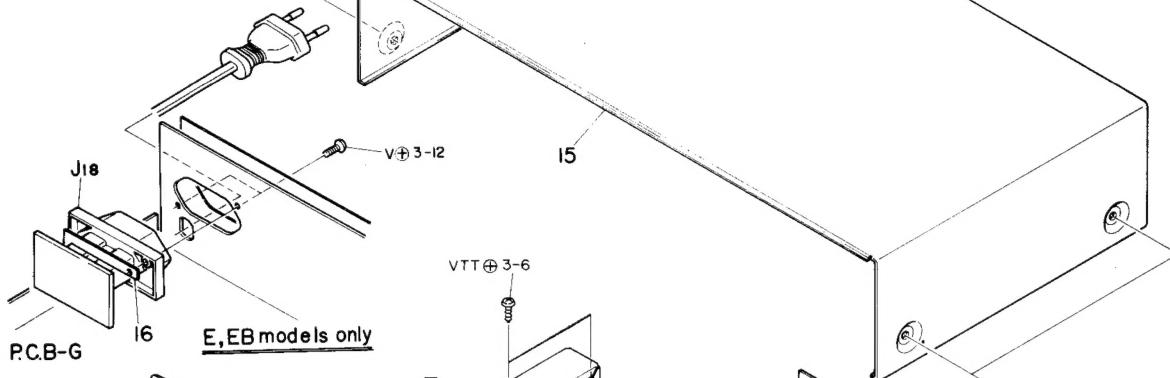
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7

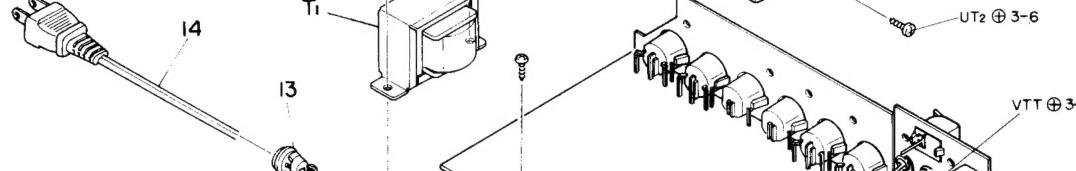
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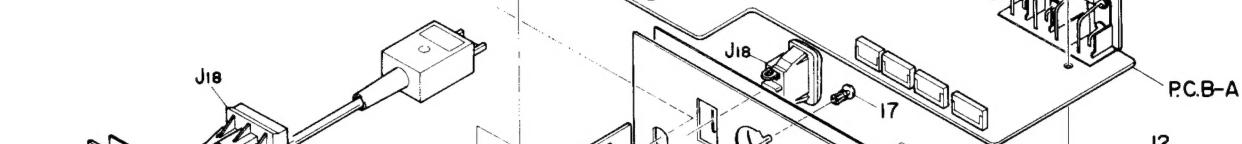
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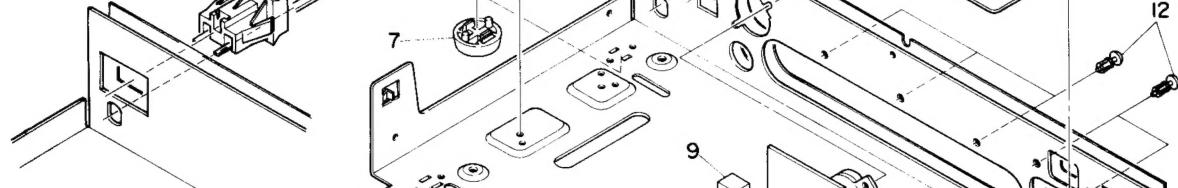
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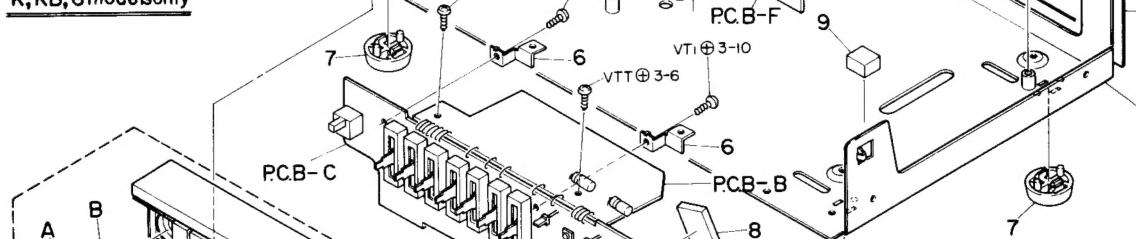
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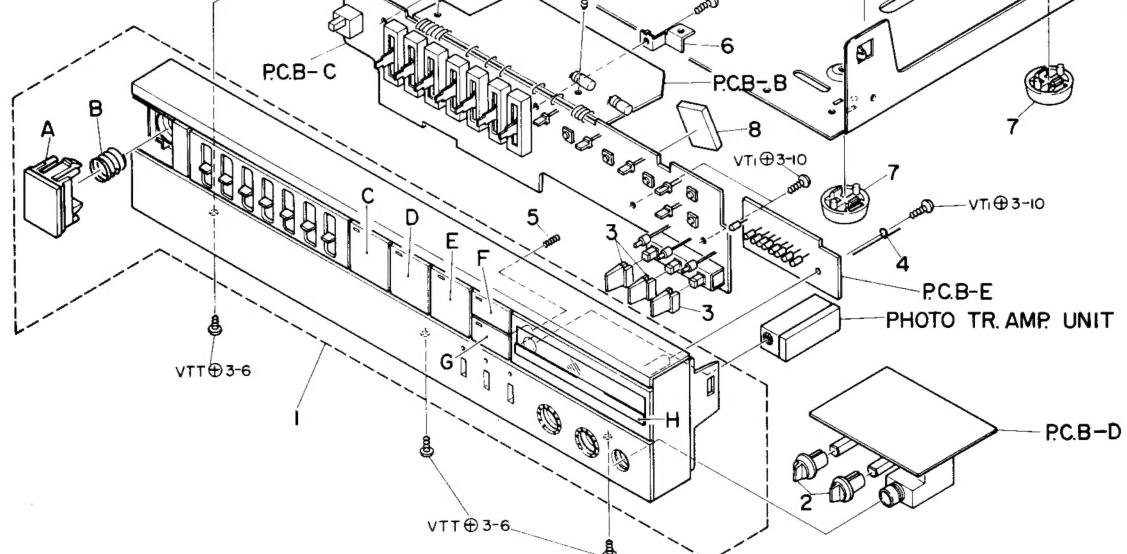
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G



H



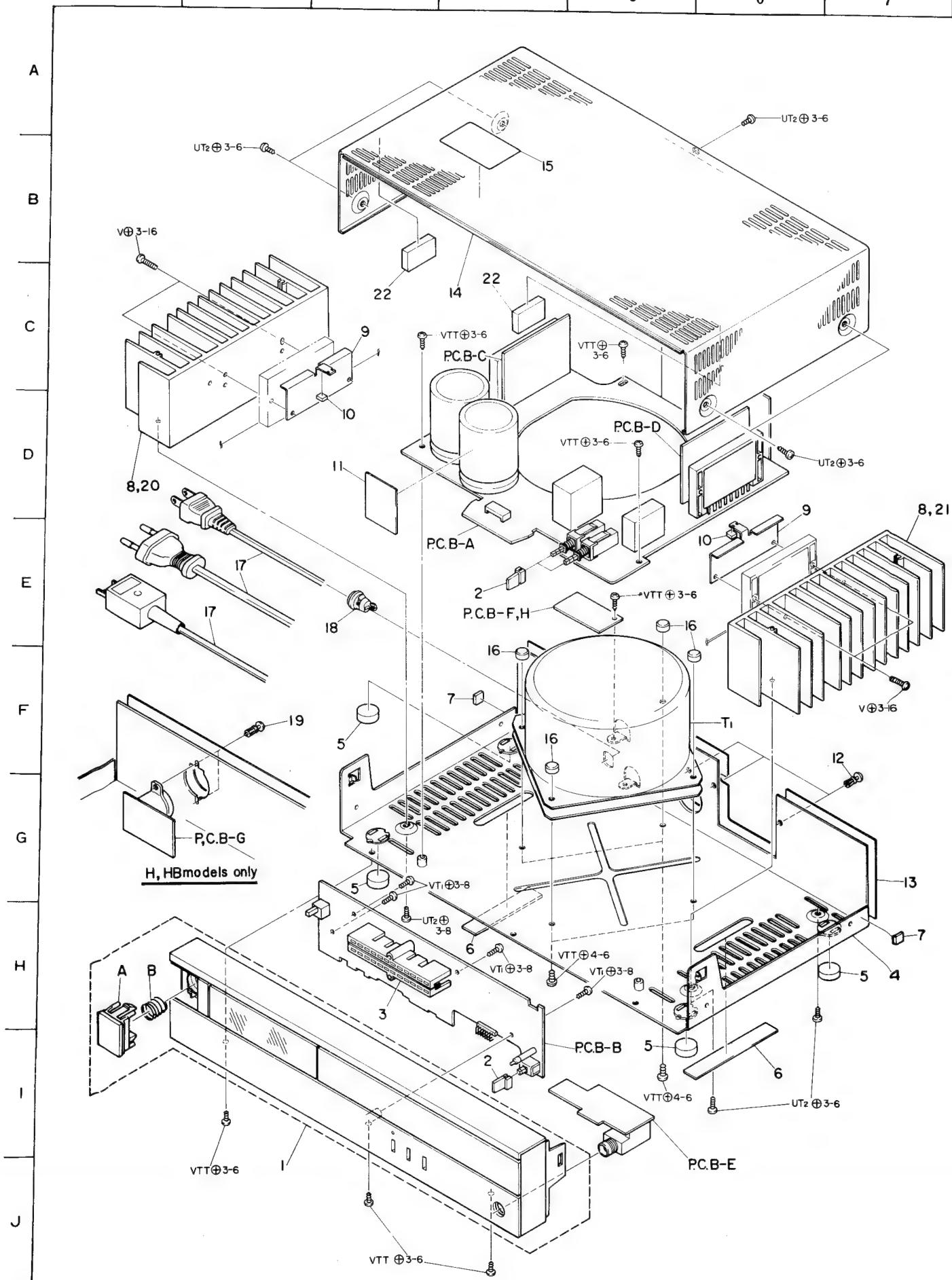
PARTS LIST

MECHANICAL PARTS (GX-110)

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-731-002-01 81-731-004-01		Front cabinet ass'y (H, E, K, G models only) Front cabinet ass'y (HB, UB, EB, KB models only)	*	1	
A	82-798-036-11 82-798-062-01		POWER button ass'y (H, E, K, G models only) POWER button ass'y (HB, UB, EB, KB models only)	MX-90	1	
B	82-798-209-01		C-spring, POWER	MX-90	1	
C	82-798-037-01 82-798-057-01		TAPE hinge ass'y (H, E, K, G models only) TAPE hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
D	82-798-040-01 82-798-060-01		TUNER hinge ass'y (H, E, K, G models only) TUNER hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
E	82-798-039-01 82-798-059-01		PHONO hinge ass'y (H, E, K, G models only) PHONO hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
F	82-798-041-01 82-798-061-01		CD hinge ass'y (H, E, K, G models only) CD hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
G	82-798-038-01 82-798-058-01		AUX hinge ass'y (H, E, K, G models only) AUX hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
H	81-731-019-01 81-731-024-01		Push-key, VR (H, E, K, G models only) Push-key, VR (HB, UB, EB, KB models only)	*	1	
2	82-798-043-01 82-798-070-01		Knob (H, E, K, G models only) Knob (HB, UB, EB, KB models only)	MX-90	2	
3	82-798-023-11		Push-button, MUT	MX-90	3	
4	82-798-212-01		T-spring, Earth	MX-90	1	
5	82-197-212-01		C-spring, Earth	FX-90	1	
6	82-798-206-01		Holder G	MX-90	2	
7	87-085-186-01		Foot		4	
8	87-063-116-01		Cushion 30-15		1	★ ★ ★
9	82-157-226-01		G cushion, Main	SD-L50	2	★ ★ ★
10	81-731-206-01 81-731-210-01 81-731-204-01 81-731-216-01		Amp. chassis ass'y (H, HB models only) Amp. chassis ass'y (UB model only) Amp. chassis ass'y (E, EB models only) Amp. chassis ass'y (K, KB, G models only)	*	1	★ ★ ★
11	81-731-015-01 81-731-026-01 81-731-025-01 81-731-012-01 81-731-027-01 81-731-013-01 81-731-028-01 81-731-014-01		Name plate, Jack (II model only) Name plate, Jack (HB model only) Name plate, Jack (UB model only) Name plate, Jack (E model only) Name plate, Jack (EB model only) Name plate, Jack (K model only) Name plate, Jack (KB model only) Name plate, Jack (G model only)	*	1	★ ★ ★
12	87-085-102-01		Nylon rivet 3.5-5.5		5	
13	87-085-184-01 87-085-185-01		Cord bushing (II, HB, UB models only) Cord bushing (E, EB, K, KB, G models only)		1	
14	87-034-962-01 87-034-992-01 87-034-578-01 82-788-674-01 87-034-708-01		AC power cord (H model only) AC power cord (HB model only) AC power cord (UB model only) AC power cord (E, EB models only) AC power cord (K, KB, G models only)	MX-100	1	
15	82-799-026-01 82-799-072-01		Cabinet, Steel (H, E, K, G models only) Cabinet, Steel (HB, UB, EB, KB models only)	TX-110	1	
16	82-773-216-01		Plate nut (E, EB models only)	AT-9500	1	
17	87-085-090-01		Nylon rivet 3-6.5 (H, HB models only)		2	

EXPLODED VIEW (BX-110)

1 2 3 4 5 6 7



PARTS LIST

MECHANICAL PARTS

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-730-004-11 81-730-031-01		Front Cabinet ass'y (H, E, K, G models only) Front Cabinet ass'y (HB, UB, EB, KB models only)	※ ※	1 1	
A	82-798-036-11 82-798-062-01		POWER button ass'y (H, E, K, G models only) POWER button ass'y (HB, UB, EB, KB models only)	MX-90 MX-90	1 1	
B	82-798-209-01		C-spring, POWER	MX-90	1	
2	82-798-023-11		Push-button, MUT	MX-90	3	
3	81-730-206-01		Guide, LED	※	2	★ ★ ★
4	81-730-204-01 81-730-202-01		Amp. chassis ass'y (H, HB models only) Amp. chassis ass'y (UB, E, EB, K, KB, G models only)	※ ※	1 1	★ ★ ★
5	82-798-024-01		Rubber foot	MX-90	4	
6	82-798-232-01		Sheet, IC	MX-90	2	★ ★ ★
7	82-749-208-01		G cushion	SA-P50	2	★ ★ ★
8	82-798-601-11		Heat sink, Main (H, HB, UB models only)	MX-90	2	★ ★ ★
9	82-781-206-01		Plate nut	SA-P80	2	
10	81-730-209-01		G cushion 6-6-3	※	2	★ ★ ★
11	81-730-208-11		Sheet 30-36-0.1	※	1	★ ★ ★
12	87-085-102-01		Nylon rivet 3.5-5.5		3	
13	81-730-013-01 81-730-027-01 81-730-026-01 81-730-014-01 81-730-028-01 81-730-015-01 81-730-029-01 81-730-016-01		Name plate, Jack (H model only) Name plate, Jack (HB model only) Name plate, Jack (UB model only) Name plate, Jack (E model only) Name plate, Jack (EB model only) Name plate, Jack (K model only) Name plate, Jack (KB model only) Name plate, Jack (G model only)	※ ※ ※ ※ ※ ※ ※ ※	1 1 1 1 1 1 1 1	★ ★ ★
14	81-730-010-01 81-730-025-01		Cabinet, Steel (H, E, K, G models only) Cabinet, Steel (HB, UB, EB, KB models only)	※ ※	1 1	
15	87-057-642-01 87-057-712-01		Label, TEMP (H, HB, UB models only) Label, TEMP (E, EB, K, KB, G models only)		1 1	★ ★ ★
16	82-752-206-01		Cover, Nut	SA-P50	4	★ ★ ★
17	87-034-962-01 87-034-992-01 87-034-578-01 82-788-674-01 87-034-708-01		AC power cord (H model only) AC power cord (HB model only) AC power cord (UB model only) AC power cord (E, EB models only) AC power cord (K, KB, G models only)		1 1 1 1 1	
18	87-085-184-01 87-085-185-01		Cord bushing (H, HB, UB models only) Cord bushing (E, EB, K, KB, G models only)		1 1	
19	87-085-090-01		Nylon rivet (H, HB models only)		2	
20	81-730-624-01		Heat sink L (E, EB, K, KB, G models only)	※	1	★ ★ ★
21	81-730-625-01		Heat sink R (E, EB, K, KB, G models only)	※	1	★ ★ ★
22	81-730-211-01		G cushion	※	2	★ ★ ★

Part No.	Description
87-261-071-21	V + 2 . 6 - 4
87-261-097-21	V + 3 - 1 2
87-355-094-21	V T , + 3 - 6
87-350-095-01	V T , + 3 - 8
87-081-511-01	V T T + 3 - 6
87-340-094-01	U T z + 3 - 6

Part No.	Description
87-261-100-21	V + 3 - 1 6
87-350-095-01	V T , + 3 - 8
87-351-096-21	V T , + 3 - 1 0
87-081-511-01	V T T + 3 - 6
87-340-094-01	U T z + 3 - 6
87-343-095-21	U T z + 3 - 8

Part No.	Description
87-268-097-11	V + 3 - 1 2
87-351-096-21	V T ₁ + 3 - 1 0
87-081-511-01	V T T + 3 - 6
87-340-094-01	U T ₂ + 3 - 6

Part No.	Description
87-261-100-21	V + 3 - 1 6
87-350-095-01	V T ₁ + 3 - 8
87-081-511-01	V T T + 3 - 6
87-081-931-01	V T T + 4 - 6
87-340-094-01	U T ₂ + 3 - 6
87-343-095-21	U T ₂ + 3 - 8

■ ACCESSORIES/PACKAGE LIST

MX-90

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	82-798-853-01		Printed indiv.. Packing	*	1	★ ★ ★
2	81-730-852-11		Cushion L. Printed indiv.	*	1	★ ★ ★
3	81-730-853-21		Cushion R. Printed indiv.	*	1	★ ★ ★
4	87-056-610-01		Poly-vinyl sack (for case)	*	1	★ ★ ★
5	82-798-854-01		Carton. Outer (H, HB, E, EB, K, KB, G models only)	*	1/4	★ ★ ★
6	82-798-855-01		Carton. Outer (UB model only)	*	1/2	★ ★ ★
7	87-056-651-01		Color label. Black (HB, UB, EB, KB models only)	*	1	★ ★ ★
8	82-798-904-01		Instructions booklet	*	1	
9	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)	*	1	★ ★ ★
10	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
11	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
12	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
13	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
14	87-056-008-11		Label. AC power cord (K, KB models only)		1	
15	87-056-084-01		Limited. Warranty (UB model only)		1	

TX-110

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	82-799-855-01		Printed indiv.. Packing	*	1	★ ★ ★
2	82-799-852-01		Cushion L. Printed indiv.	*	1	★ ★ ★
3	82-799-853-11		Cushion R. Printed indiv.	*	1	★ ★ ★
4	82-799-856-01		Carton. Outer (H, HB, E, EB, K, KB, G models only)	*	1/4	★ ★ ★
5	82-799-857-01		Carton. Outer (UB model only)	*	1/2	★ ★ ★
6	87-056-610-01		Poly-vinyl sack (for case)		1	★ ★ ★
7	87-056-651-01		Color label. Black (HB, UB, EB, KB models only)		1	★ ★ ★
8	82-799-904-01		Instruction booklet	*	1	
9	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
10	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)		1	★ ★ ★
11	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
12	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
13	87-056-008-11		Label. AC power cord (K, KB models only)		1	★ ★ ★
14	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
15	87-056-084-01		Limited. Warranty (UB model only)		1	★ ★ ★
16	82-791-652-01		Loop antenna ass'y (H, E, K, G models only)	TX-70	1	
17	82-795-670-01		Loop antenna ass'y (HB, UB, EB, KB models only)		1	
18	87-032-845-01		Siemens plug (H, HB models only)		1	
19	87-043-065-01		FM feeder antenna		1	
20	87-034-968-01		Connection cord CW-255GSK		1	

GX-110

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-731-853-01		Printed indiv., Packing	*	1	★ ★ ★
2	82-789-852-01		Cushion L, Printed indiv.	TX-110	1	★ ★ ★
3	82-789-853-11		Cushion R, Printed enviv.	TX-110	1	★ ★ ★
4	81-731-854-01		Carton, Outer (H, HB, E, EB, K, KB, G models only)	*	1/4	★ ★ ★
5	81-731-855-01		Carton, Outer (UB model only)	*	1/2	★ ★ ★
6	81-731-856-01		Sleeve, Corrugated board	*	1	★ ★ ★
7	85-263-854-01		Bag, Air-cap (for remote control)		1	★ ★ ★
8	87-056-610-01		Poly-vinyl, sack (for case)		1	★ ★ ★
9	87-056-651-01		Color label, Black (HB, UB, EB, KB models only)		1	★ ★ ★
10	81-731-904-01		Instructions booklet	*	1	
11	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
12	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)		1	★ ★ ★
13	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
14	87-056-084-01		Limited, Warranty (UB model only)		1	★ ★ ★
15	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
16	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
17	81-731-638-01		Remote control T-110 (H, K, G models only)	*	1	
18	81-731-659-01		Remote control T-110 Black (HB, UB, KB models only)	*	1	
19	81-731-654-01		Remote control T-110 A Black (EB model only)	*	1	
20	81-731-639-01		Remote control T-110 A (E model only)	*	1	
21	85-439-002-01		Syncrete cord, CW-150K		1	
	87-056-008-11		Label, AC power cord (K, KB models only)			★ ★ ★

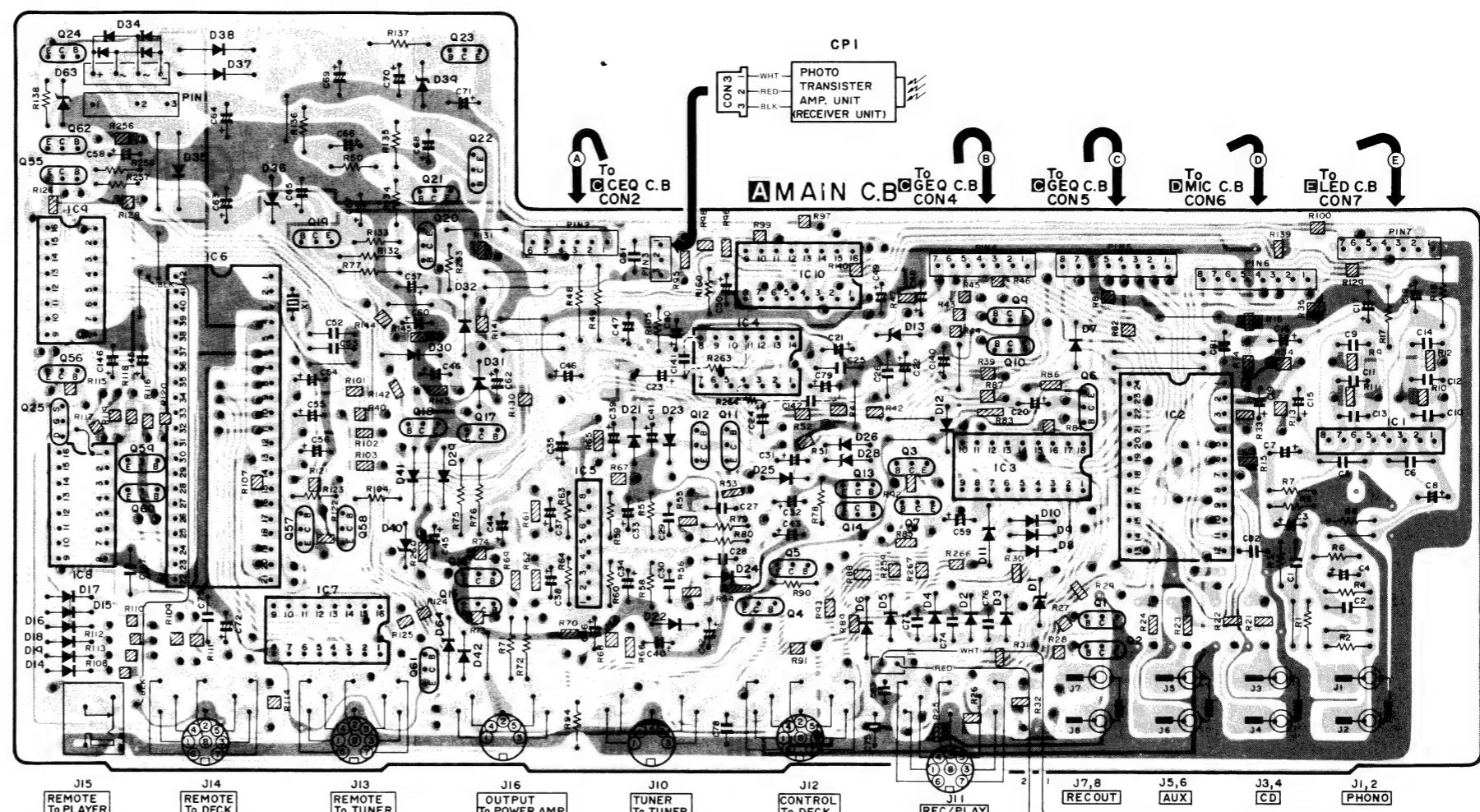
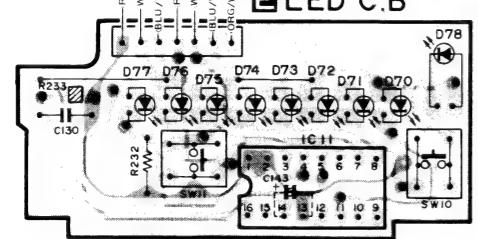
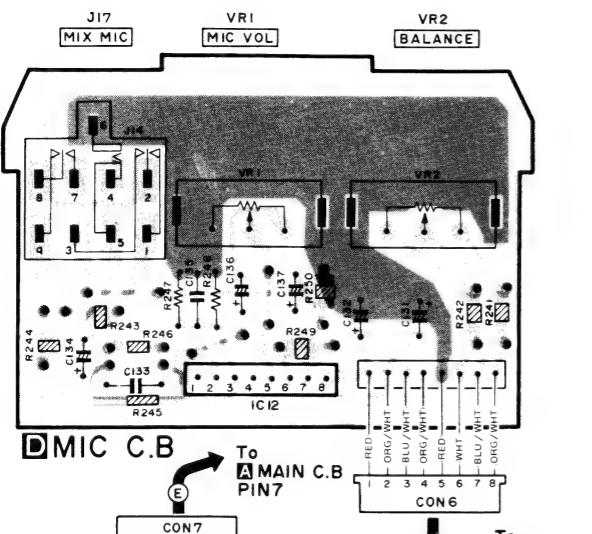
Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-730-855-01		Printed indiv., Packing	*	1	★ ★ ★
2	81-730-852-11		Cushion L, Printed indiv.	*	1	★ ★ ★
3	81-730-853-21		Cushion R, Printed indiv.	*	1	★ ★ ★
4	81-730-856-01		Carton, Outer (H, HB, E, EB, K, KB, G models only)	*	1/4	★ ★ ★
5	81-730-857-01		Carton, Outer (UB model only)	*	1/2	★ ★ ★
6	81-730-858-01		Auxiliary cushion	*	1	★ ★ ★
7	87-056-610-01		Poly-vinyl sack (for case)		1	★ ★ ★
8	87-056-651-01		Color label Black (HB, UB, EB, KB models only)		1	★ ★ ★
9	81-730-904-01		Instructions booklet	*	1	
10	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
11	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)		1	★ ★ ★
12	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
13	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
14	87-056-084-01		Limited, Warranty (UB model only)		1	★ ★ ★
15	87-056-074-01		Poly-vinyl sack (for guarantee card)		1	★ ★ ★
16	87-056-008-11		Label, AC power cord (K, KB models only)		1	★ ★ ★
17	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
18	87-034-968-01		Connection cord CW-255GSK		1	

AIWA Co., Ltd. Tokyo Japan

NOTES (1) Earth pattern Printed resistor pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
 An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

WIRING (GX-110)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A
B
C
D
E
F
G
H
I
J

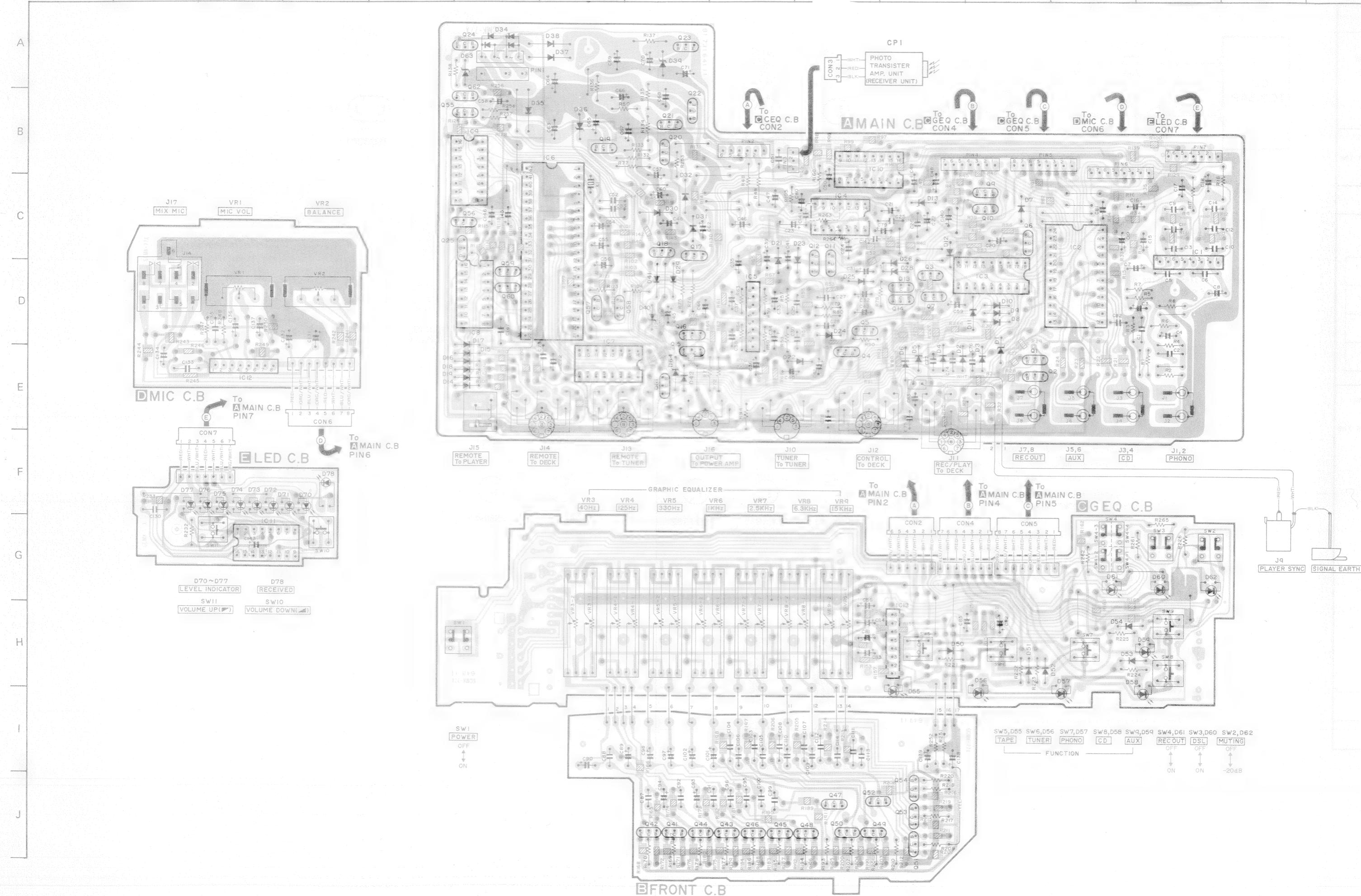
WIRING (GX-110)

NOTES (1)

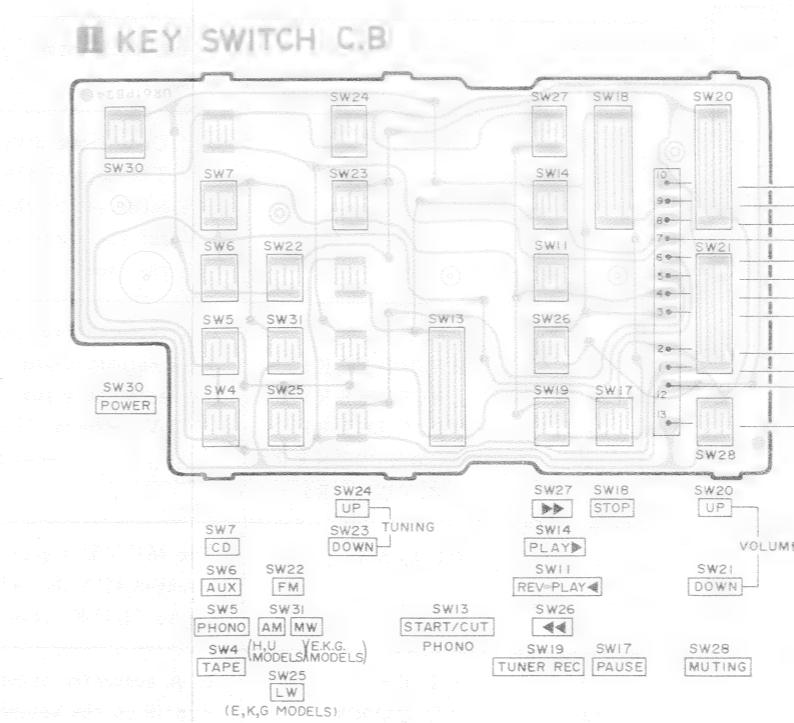
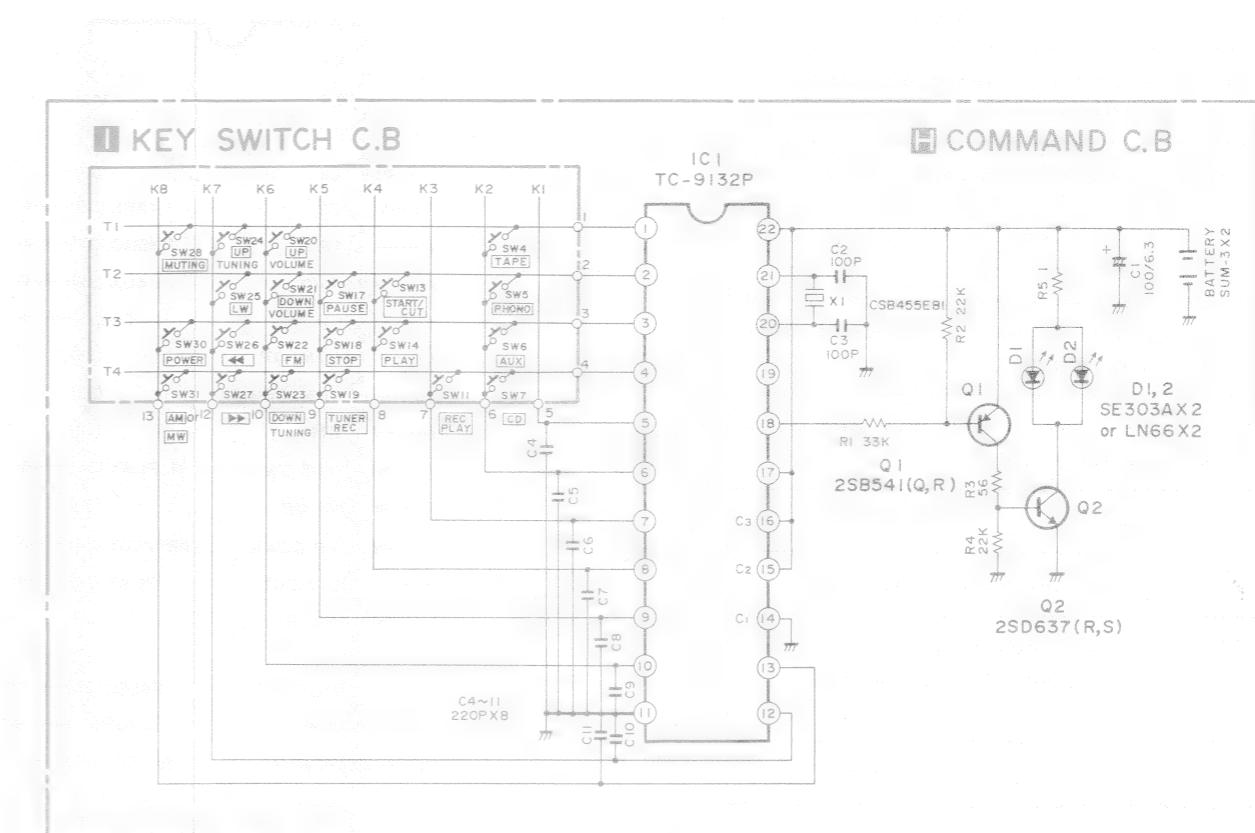
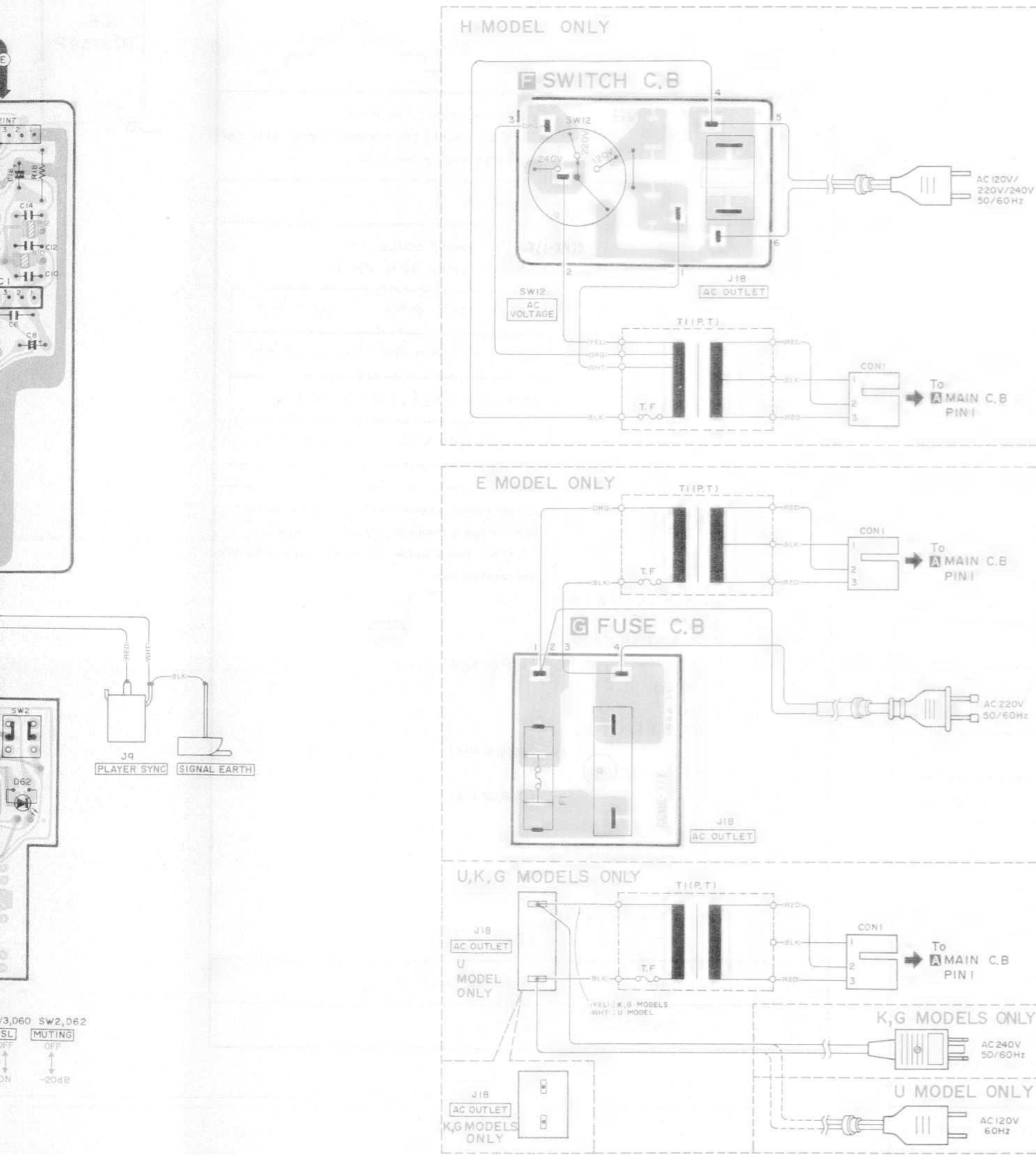
Earth pattern Printed resistor pattern Others pattern

The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

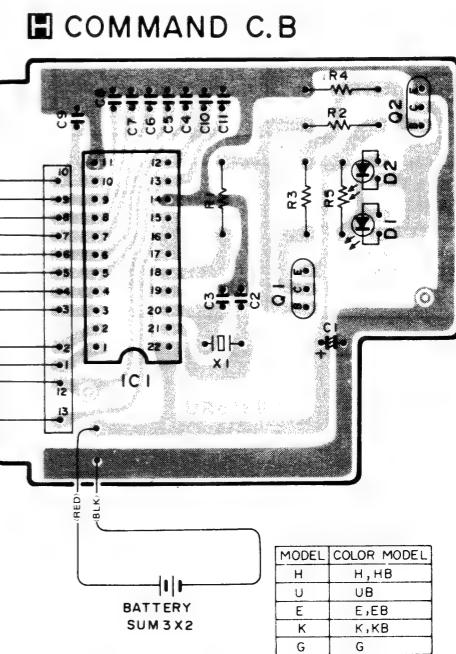
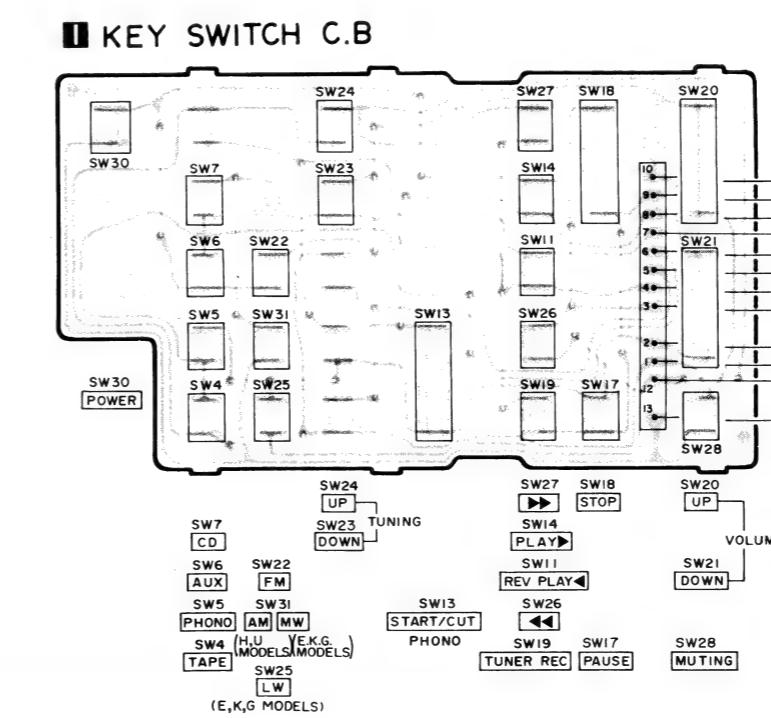
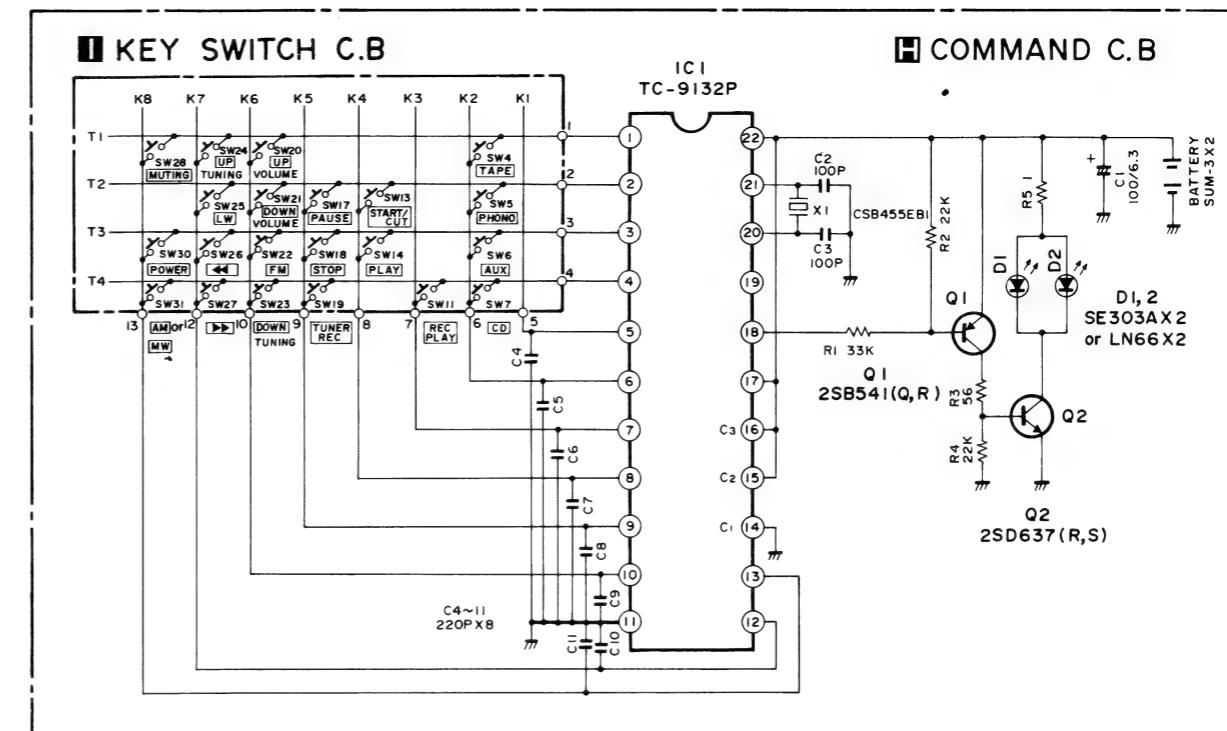
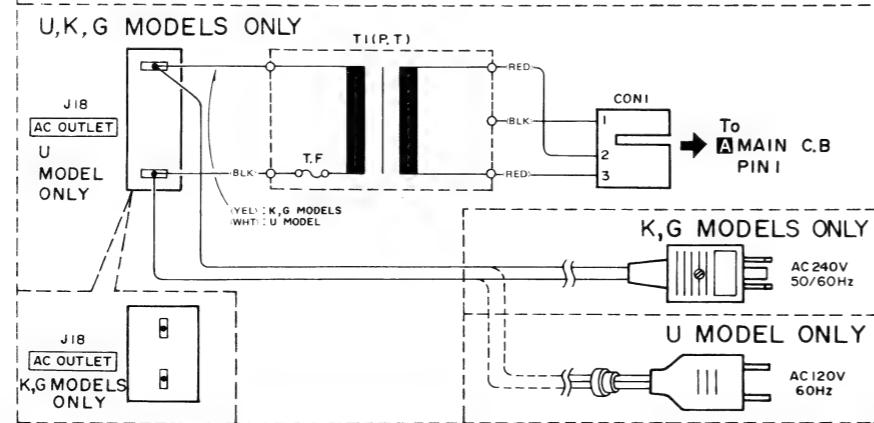
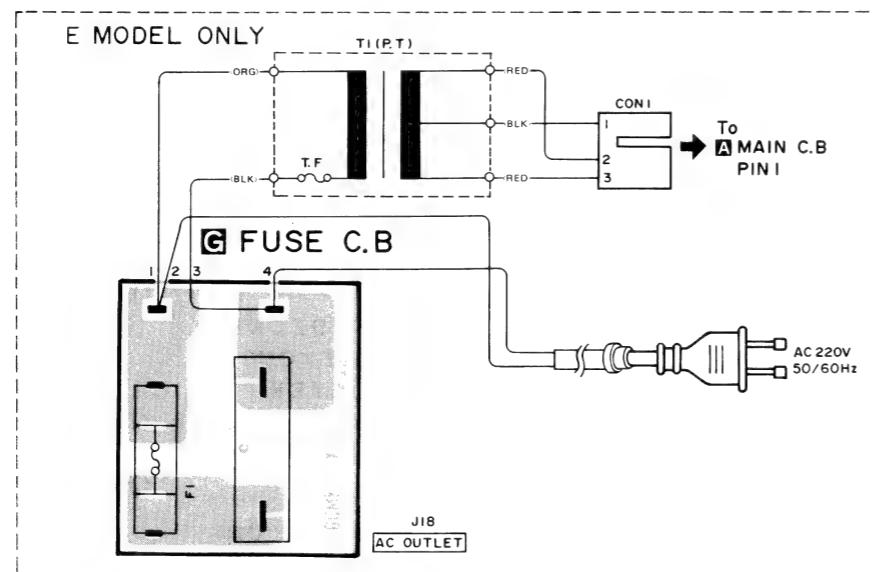
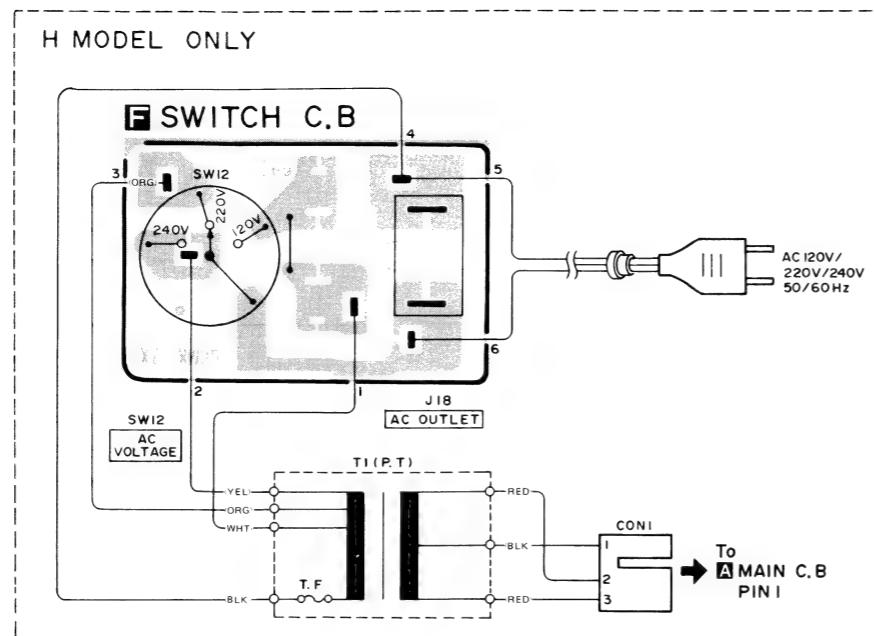
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.



15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30



15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30



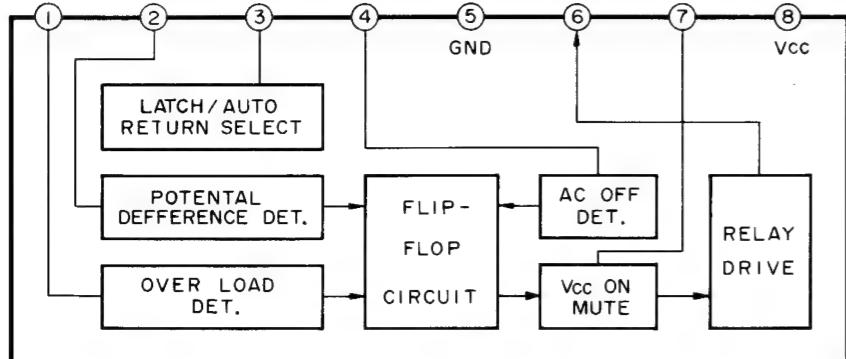
MODEL	COLOR	MODEL
H		H, HB
U		UB
E		E, EB
K		K, KB
G		G

Circuit description

• μPC1237H Pin description

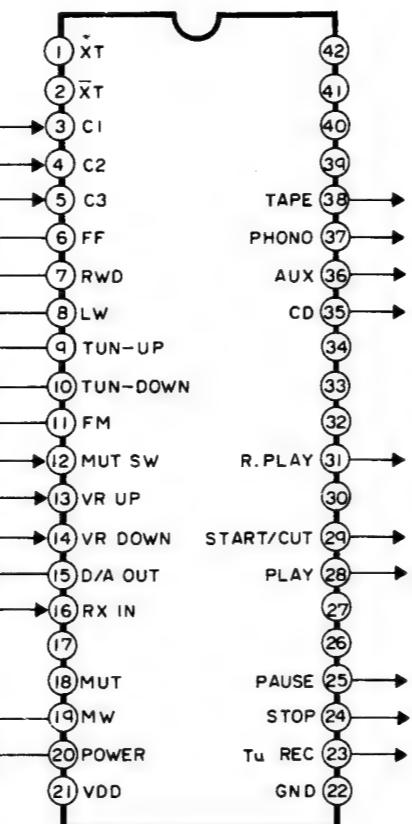
Pin No.	Pin names	Function
①	Overload detection	Detection of speaker pins short-circuited
②	Middle point potential detection	Relay OFF at approx 0.6 V (BX-110 SP pin ± 2 V) (MX-90 SP pin ± 1.5 V)
③	Auto-return selection	Auto-return when it is grounded, and non-return when it is connected to the capacitor.
④	AC detection	Set relay to OFF when power switch is set to OFF.
⑤	GND	GND
⑥	Relay drive	Drives protection relay.
⑦	Power ON, MUTE	Time constant circuit pin from the timer power ON until the relay is ON.
⑧	Vcc	+B

μPC1237H



1. DESCRIPTION OF IC TC9134P

1-1. Pin names

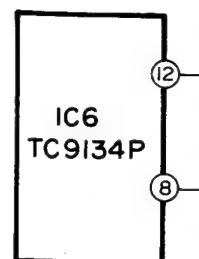


* The arrows show the signal direction

1-2. Description of pins

Pin No.	Pin names	Function
1, 2	XT, $\bar{X}T$	Timing oscillator pins. 450 kHz
3	C ₁	0 Code input pins.
4	C ₂	1 The code of the transmitter and the cords set by these pins are compared, and the input is accepted when they are the same.
5	C ₃	1
6	FF(DECK)	Continuous signal output pins.
7	RWD(DECK)	This output is kept at "LOW" level while the reception signal is input.
8	LW(TUNER)	5 V
9	UP(TUNER)	0 V
10	DOWN(TUNER)	
11	FM(TUNER)	
12	MUT SW	The MUTE signal output pin 18 is inverted with the MUTE switch input pin set to "LOW" level.
13	VR UP	D/A converter external control input pins.
14	VR DOWN	Pin 13 is the volume UP control pin; the voltage at pin 15 is raised when pin 13 is set to "LOW" level. Pin 14 is the volume DOWN control pin; the voltage at pin 15 drops when pin 14 is set to "LOW" level.

1-3. Descri

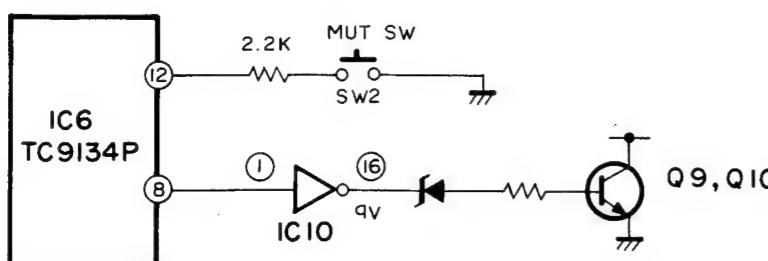


Pin No.	Pin names	Function
15	D/A OUT	Volume control voltage output pin. The voltage is output by diving V_{DD} by 32. $V_{DD}/32$
16	Rx. IN	Reception signal input pin. This pin inputs the command signal with the carrier signal eliminated.
17	-	(Blank pin)
18	MUT	MUTE signal output pin. This is controlled by pin 12.
	MUT OFF	MUT ON
IC6.⑩	HIGH/LOW	HIGH/LOW
IC6.⑪	HIGH(3.5V)	LOW(0V)
IC10.⑫	LOW(0V)	HIGH(9V)
19	MW(TUNER)	Single-shot signal (single pulse) output pin. When a command signal is input, a "LOW" level pulse is output from only the designated pin.
20	POWER	5 V
23	TUNER REC(DECK)	0 V
24	STOP(DECK)	140ms
25	PAUSE(DECK)	
26, 27	-	(Blank pin)
28	PLAY(DECK)	
29	START/CUT (PLAYER)	
30	R.PLAY(DECK)	
31	-	(Blank pin)
32~34	CD(FUNCTION)	
35	AUX(FUNCTION)	
36	PHONO (FUNCTION)	
37	TAPE(FUNCTION)	
38	-	(Blank pin)
39~42	-	
21	V _{DD}	Power voltage pin.
22	GND	GND pin.

1-3-1.

1-3-2.

1-3. Description of muting



	MUT OFF	MUT ON
IC6 (12)	HIGH/LOW	HIGH/LOW
IC6 (18)	HIGH(3.5V)	LOW(OV)
IC10 (16)	LOW(OV)	HIGH(9V)

1-3-1. Description of pins and SW2

SW2 ... This is a non-locking switch: pin 12 is set to "LOW" level (0 V) only when this switch is pressed.

Pin 12 ... This is the pin 10 control pin and is set to "HIGH" level (5 V) in general; pin 10 is changed over "HIGH" level → "LOW" level → "HIGH" level → "LOW" level ... every time this pin is set to "LOW" level.

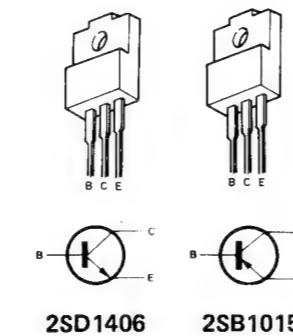
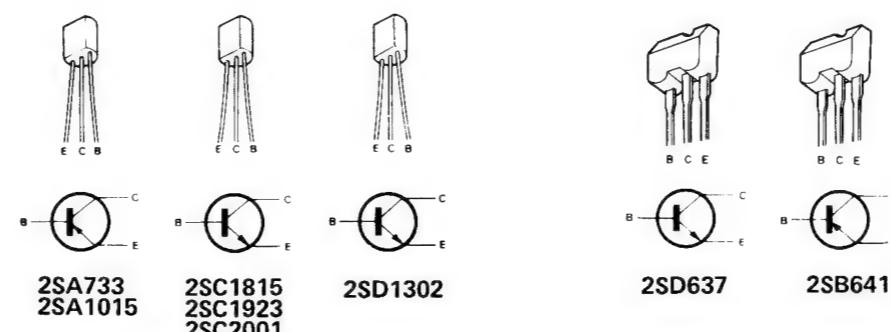
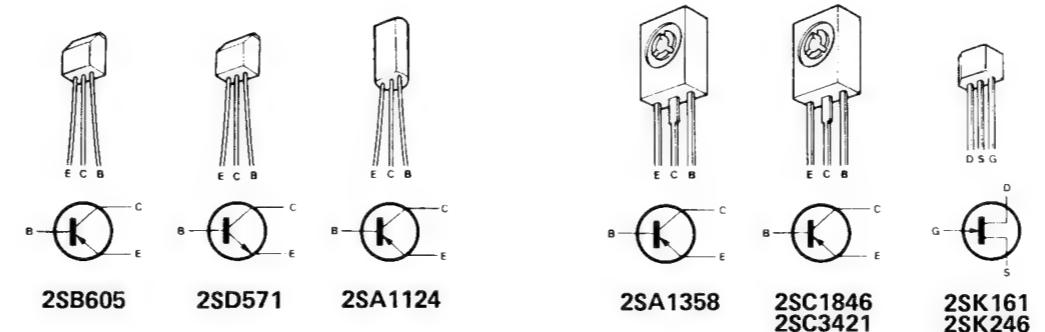
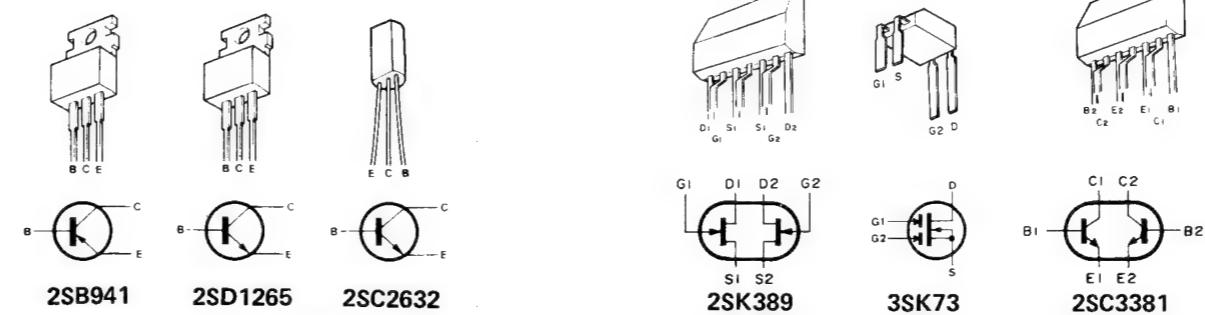
Pin 10 ... The inside of pin 10 is flip-flop circuit, and is changed "HIGH" level → "LOW" level → "HIGH" level → "LOW" level ... every time pin 10 is set to "LOW" level.

1-3-2. Description of MUTE operation

Pin 10 is set to "HIGH" level at first (when the AC cord is plugged), and in the MUTE OFF mode. When the MUTE switch is pressed to set pin 10 to "LOW" level ($\frac{5V}{0V}$), pin 10 is set to the "LOW" level and the unit enters the MUTE ON mode.

When the MUTE switch is pressed then, pin 10 is set to "HIGH" level and the unit enters the MUTE OFF mode.

* When the remote control operation is performed, pin 10 is set to "HIGH" level and "LOW" level alternately every time the MUTE button is pressed.



SCHEMATIC DIAGRAM (BX-110)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A

B

C

D

E

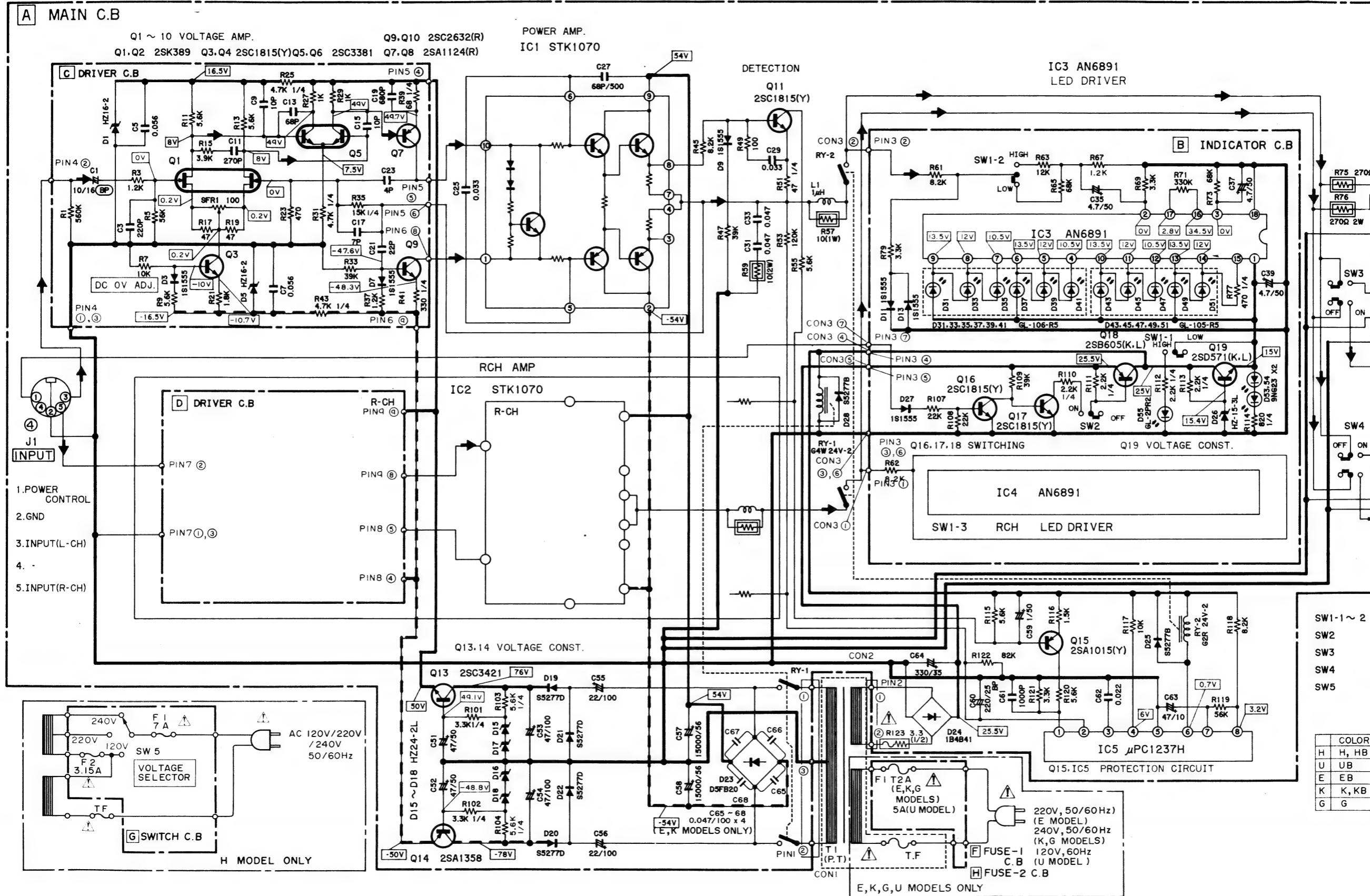
F

G

H

I

J

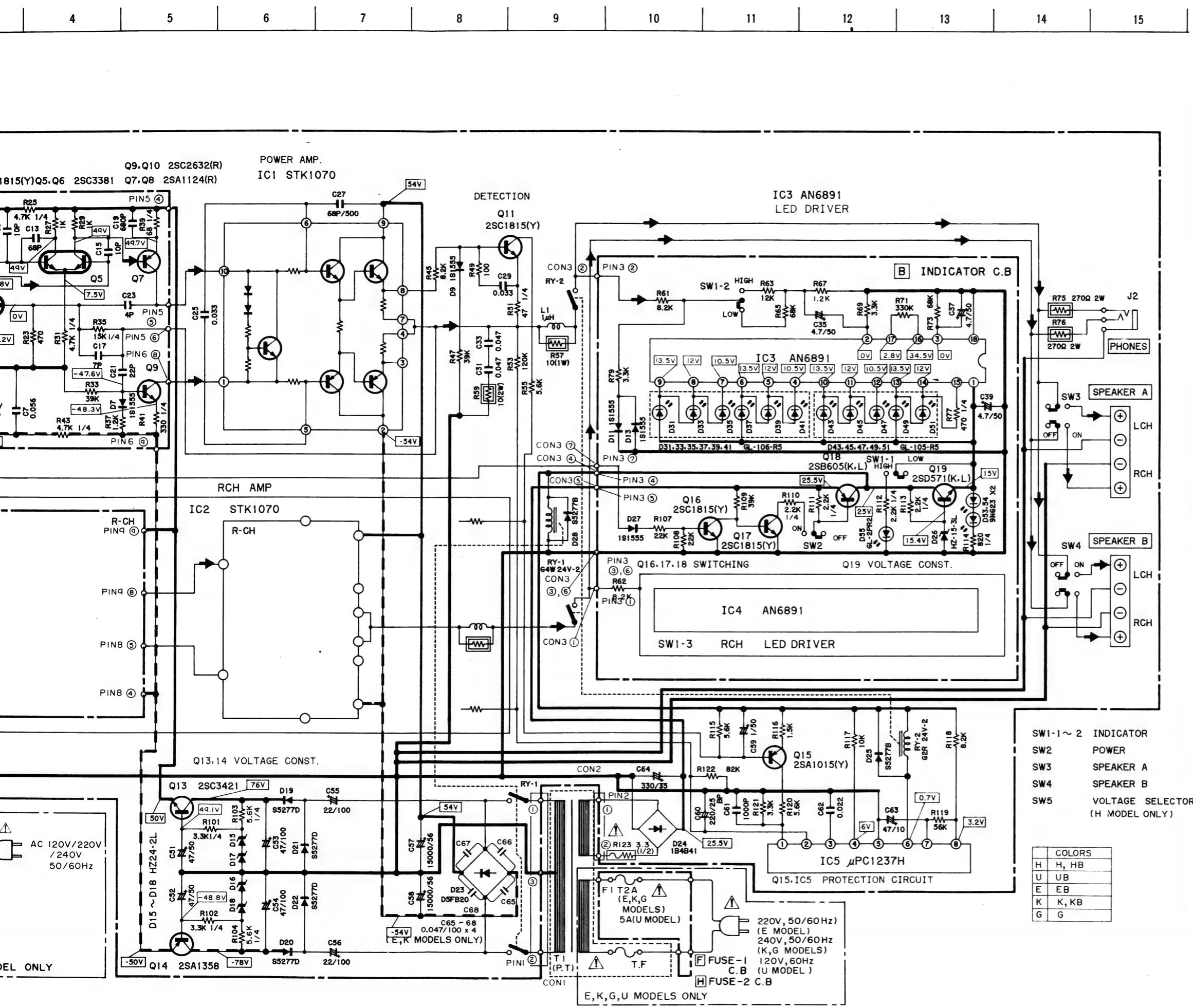


• μPC

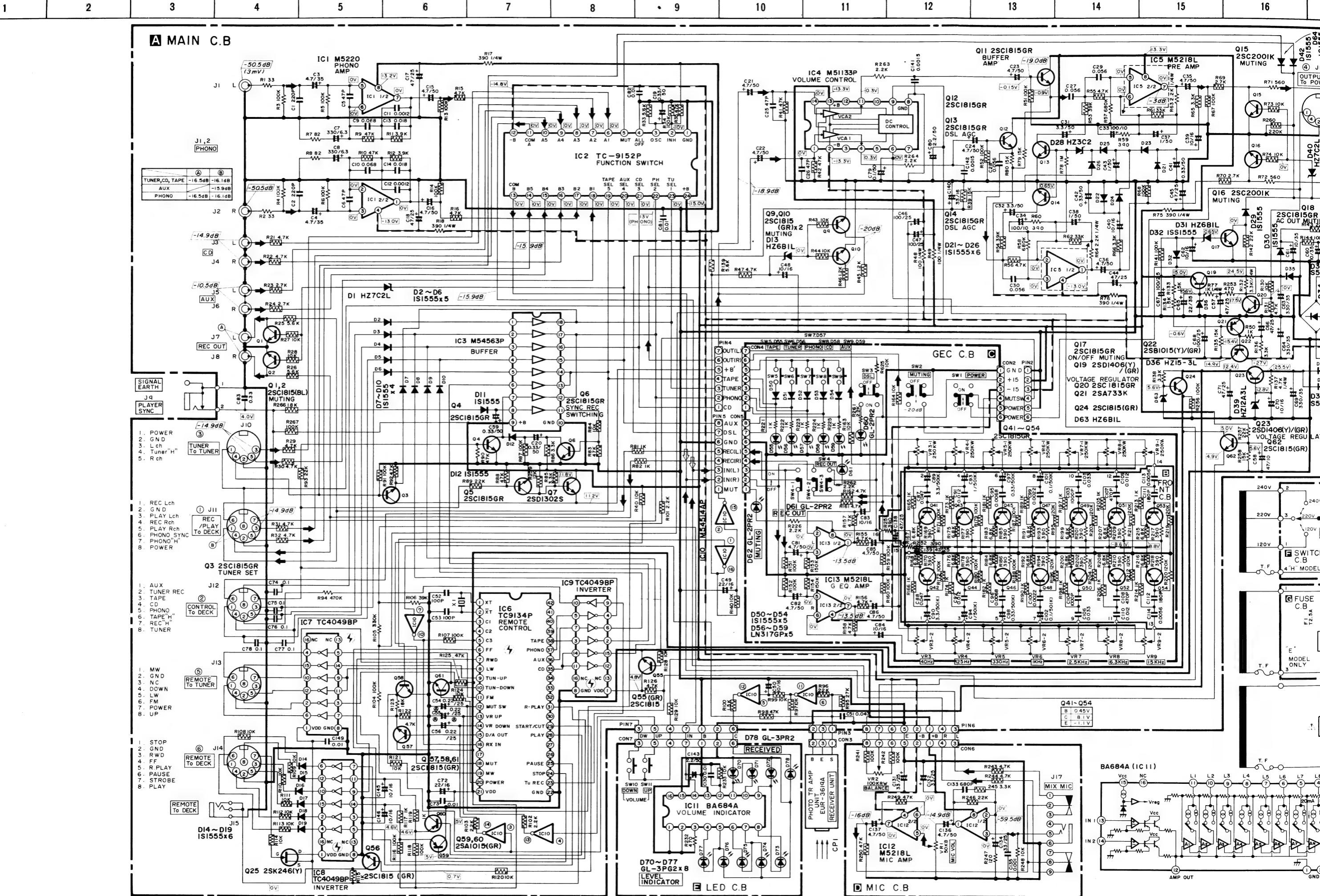
IC AN6

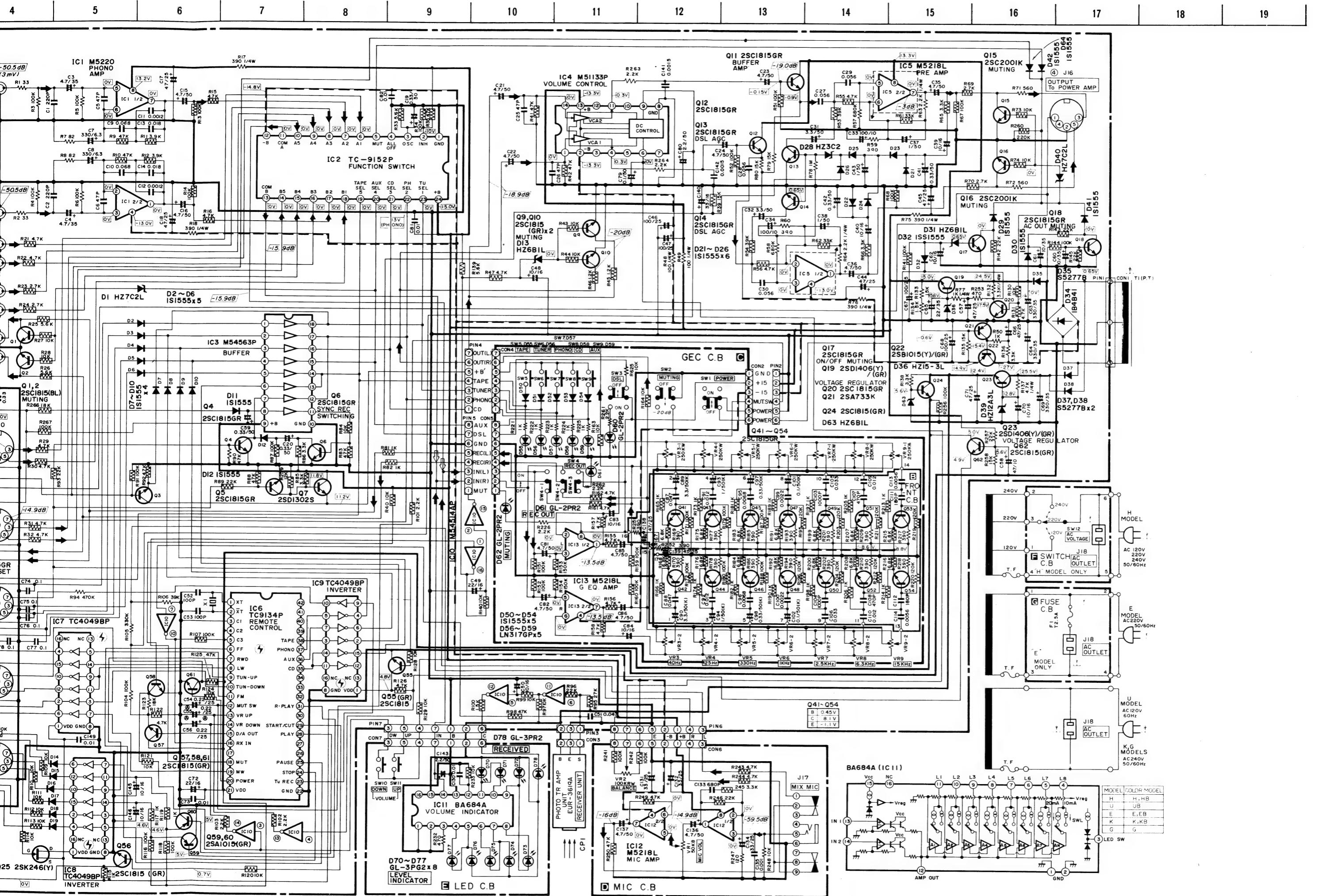
IC STK

O



SCHEMATIC DIAGRAM (GX-110)





NOTES (1) Earth pattern Printed resistor pattern Component side pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
 But () is with AM reception.

WIRING (TX-110 E, K)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A

11. MW LF Adjustment
 T6 603 kHz

12. MW Tracking Adjustment
 T4 603 kHz
 TC201 1404 kHz

3. FM Tracking Adjustment

L 1, 2, 3, 4, 5, 6 87.5 MHz
 TC1, 2 108.0 MHz
 Method:
 Apply the input signal of 87.5 MHz, 20 dB and 108.0 MHz, 20 dB and adjust L1, 2, 3, 4, 5, 6, TC1 & 2 for minimum distortion.

9. Muting Level Adjustment

Settings:
 • BAND Switch : FM
 • FM MUTE Switch : ON
 • Input Signal : 98.0 MHz, 25 dB
 • Adjustment Location : SFR3
 Method:
 Reducing the output of the signal generator to 25 dB, and adjust SFR3 to silence the output.
 Rating:
 25 dB ± 3 dB

B

6. FM V.C.O. Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • HI-BLEND Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB
 • Adjustment Location : SFR2
 Method:
 Adjust SFR2 for maximum separation outputs.

C

7. FM Separation Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB, non-modulation
 • Test Point : TP3
 • Adjustment Location : SFR1
 Method:
 Adjust SFR1 to obtain a 19 kHz of frequency

D

14. LW Tracking Adjustment
 T7 144 kHz
 TC202 353 kHz

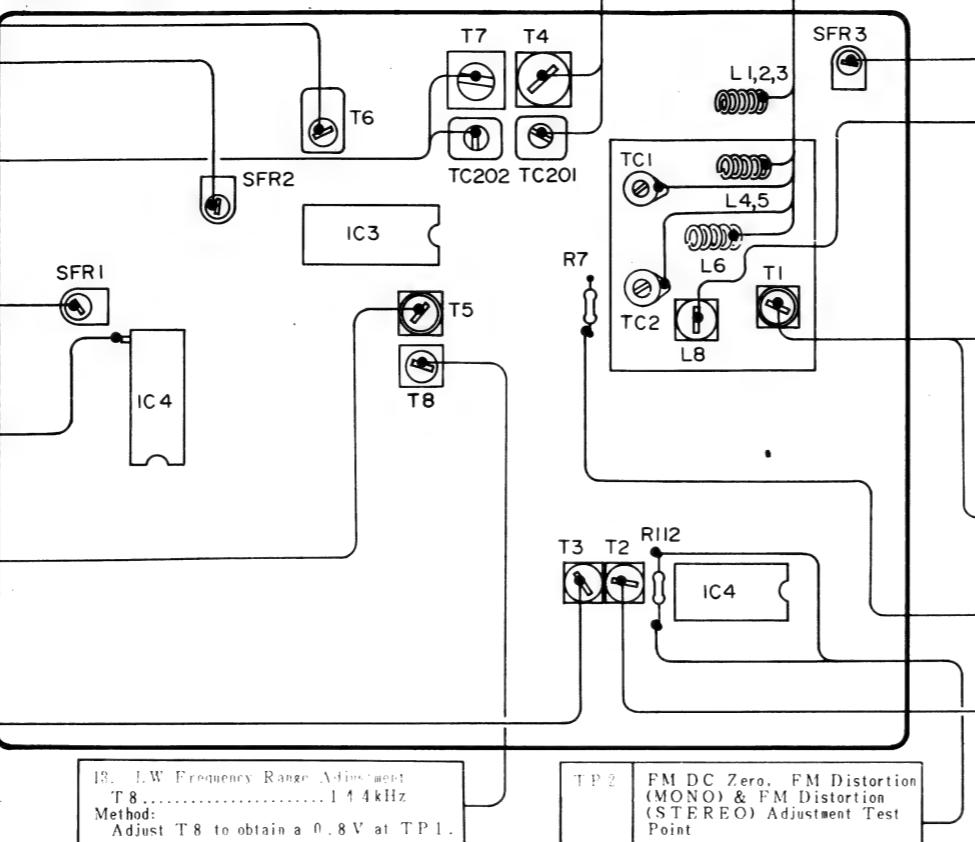
10. AM Frequency Range Adjustment
 T5 522 kHz
 Method:
 Adjust T5 to obtain a 0.8 V at TP1 and confirm the highest frequency is 1.611 kHz.

E

5. FM Distortion (MONO) Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB, MOD. 7.5 kHz
 • Test Point : TP2
 • Adjustment Location : T3
 Method:
 Adjust T3 for minimum distortion.

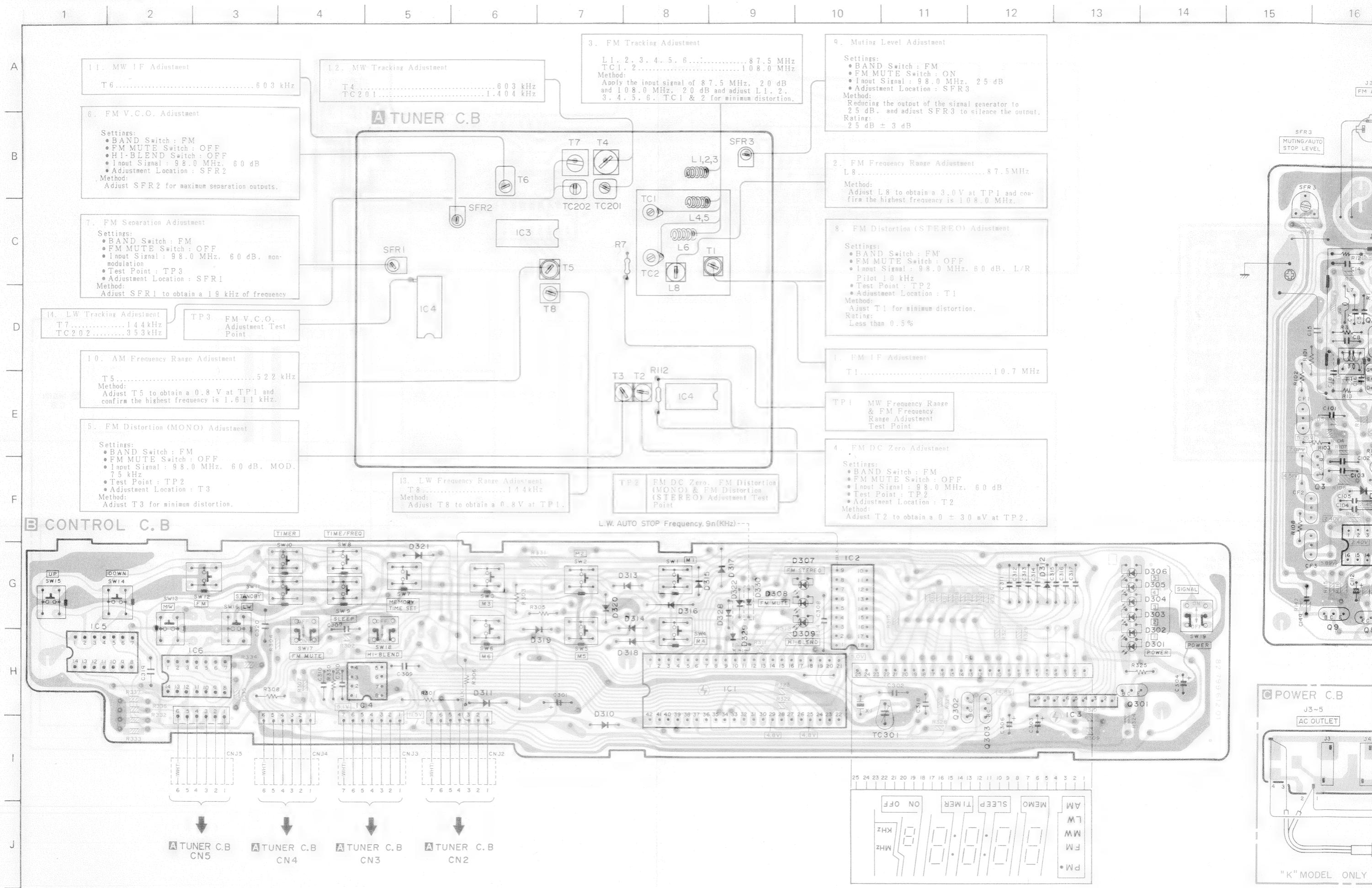
F

A TUNER C.B



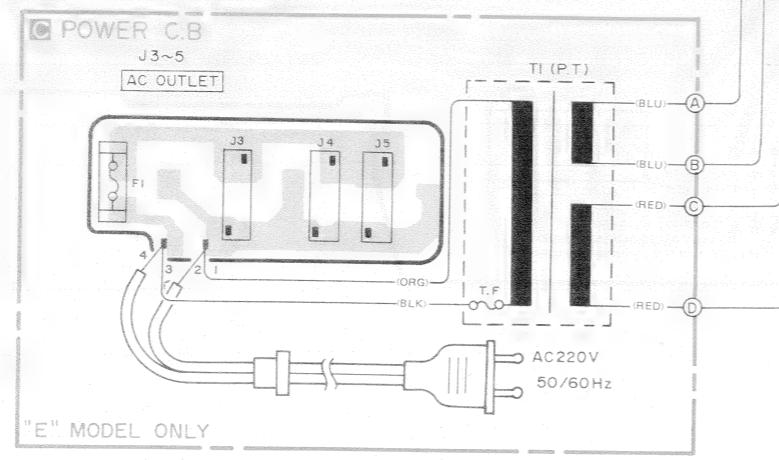
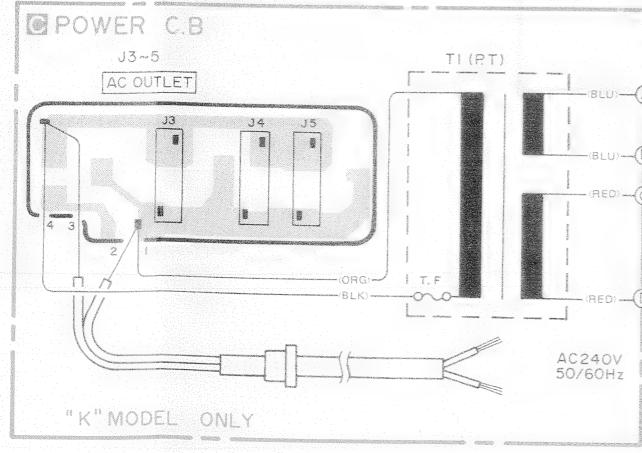
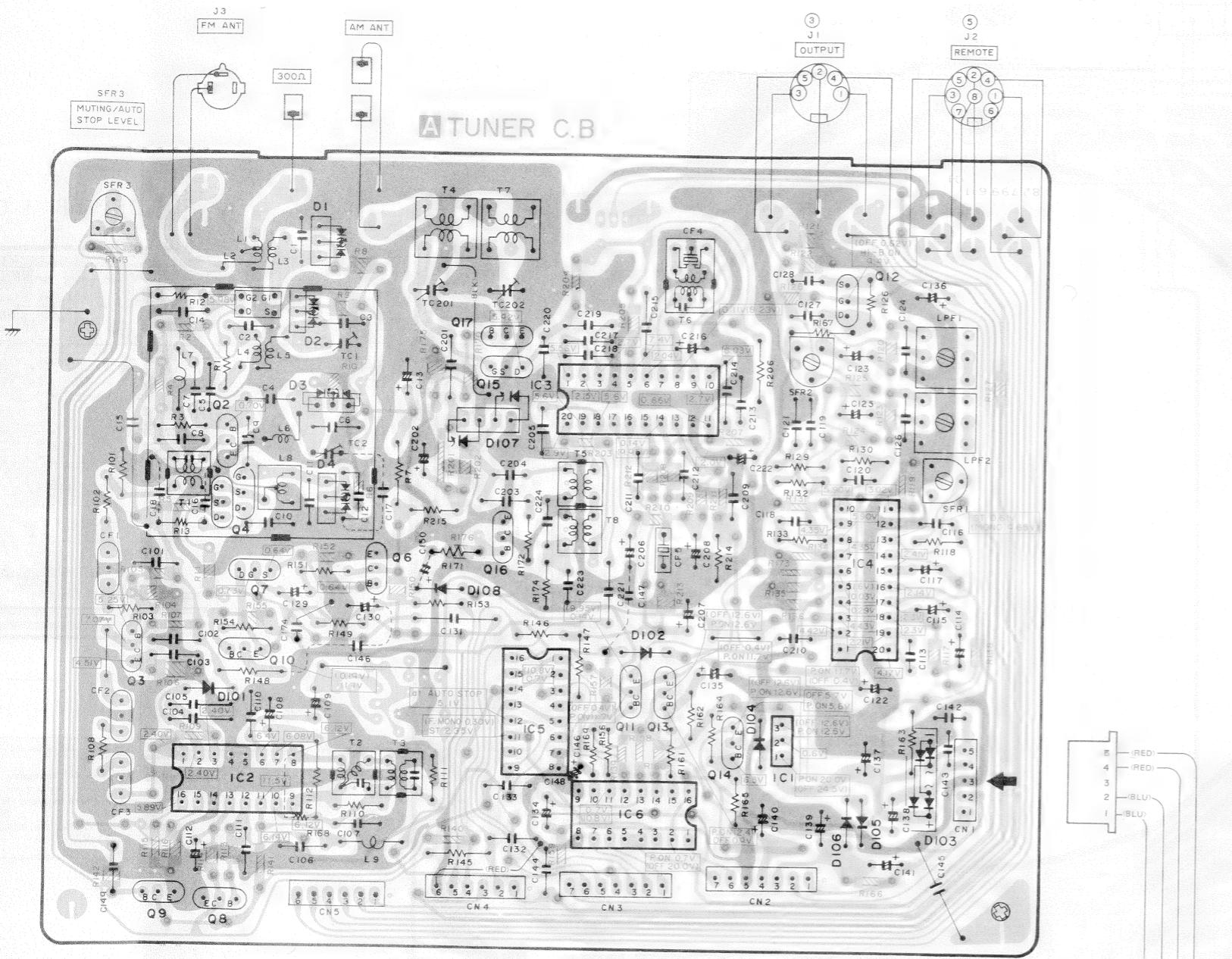
WIRING (TX-110 E, K)

NOTES (1) Earth pattern Printed resistor pattern Component side pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
 But () is with AM reception.



15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23

MEMO ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★



15

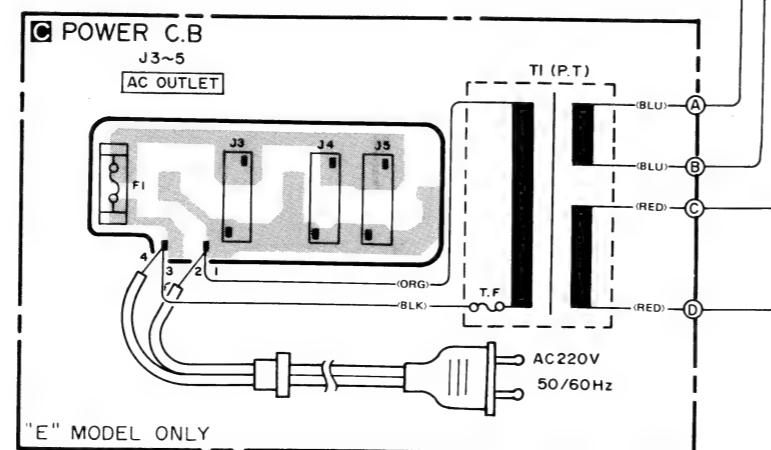
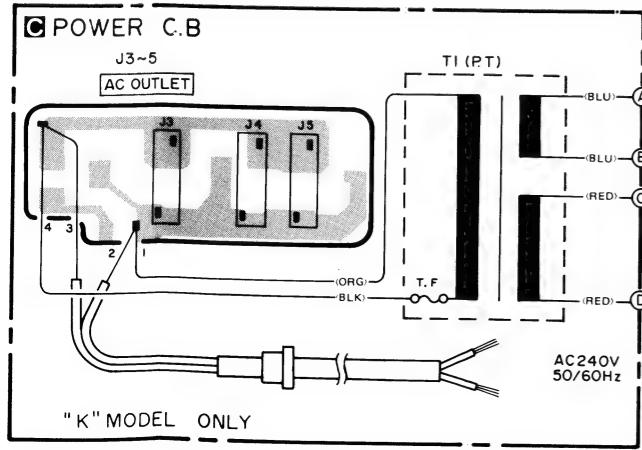
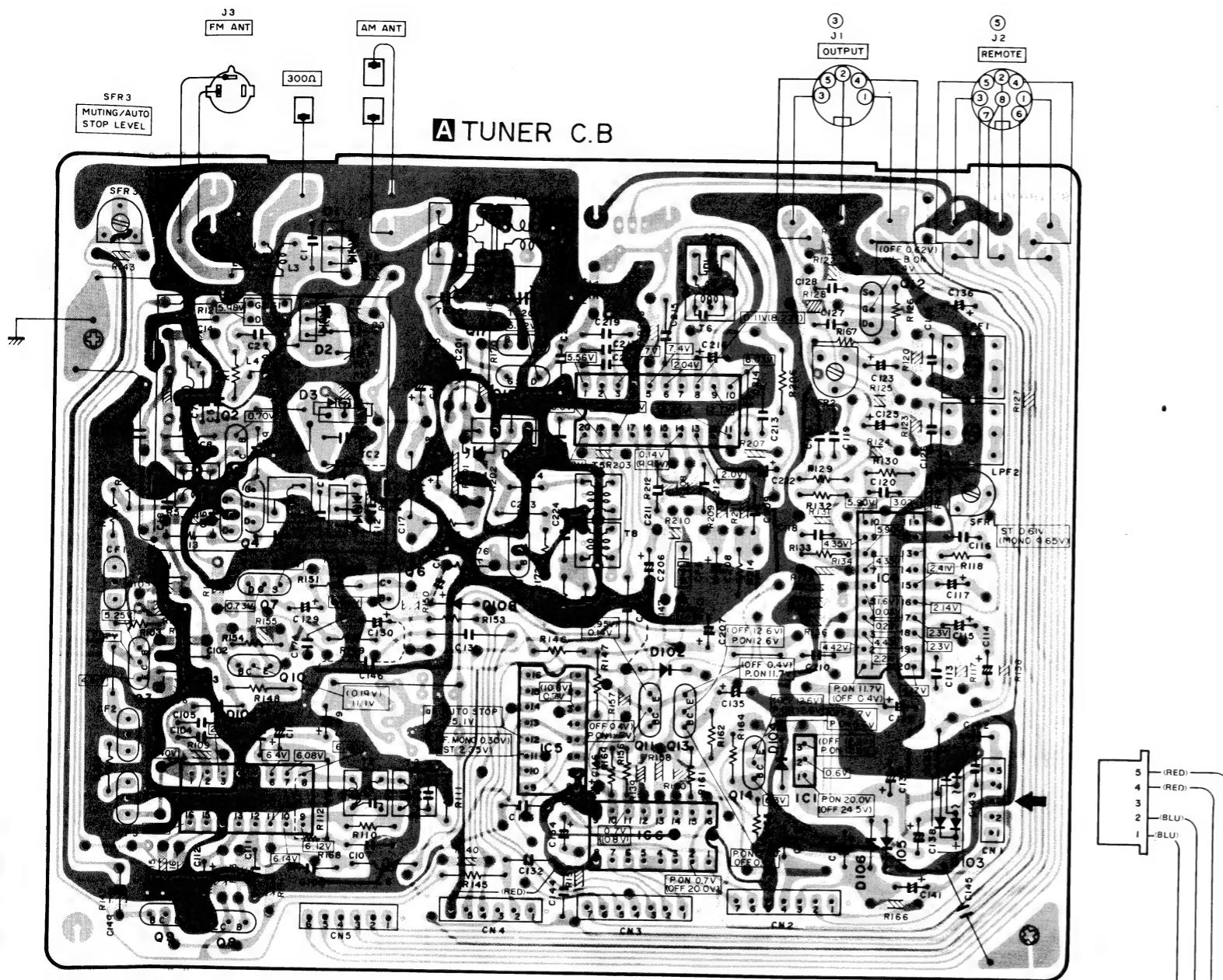
16

17

18

☆

☆ MEMO ☆



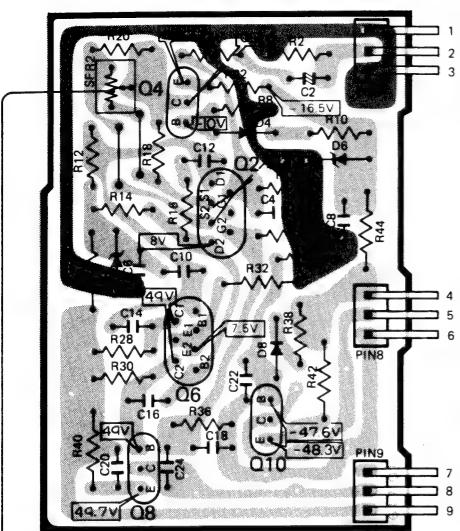
WIRING (BX-110)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A

B

D DRIVER - 2 C. B



NOTES (1) Earth pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special

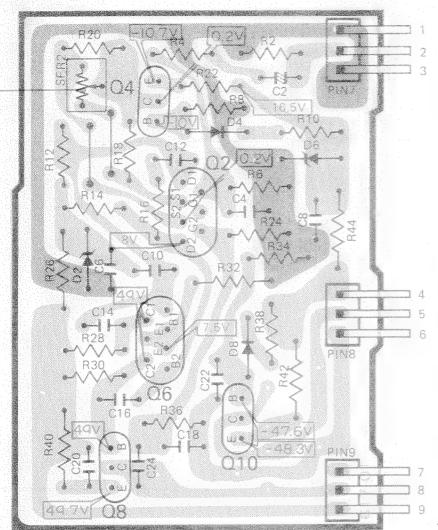
WIRING (BX-110)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

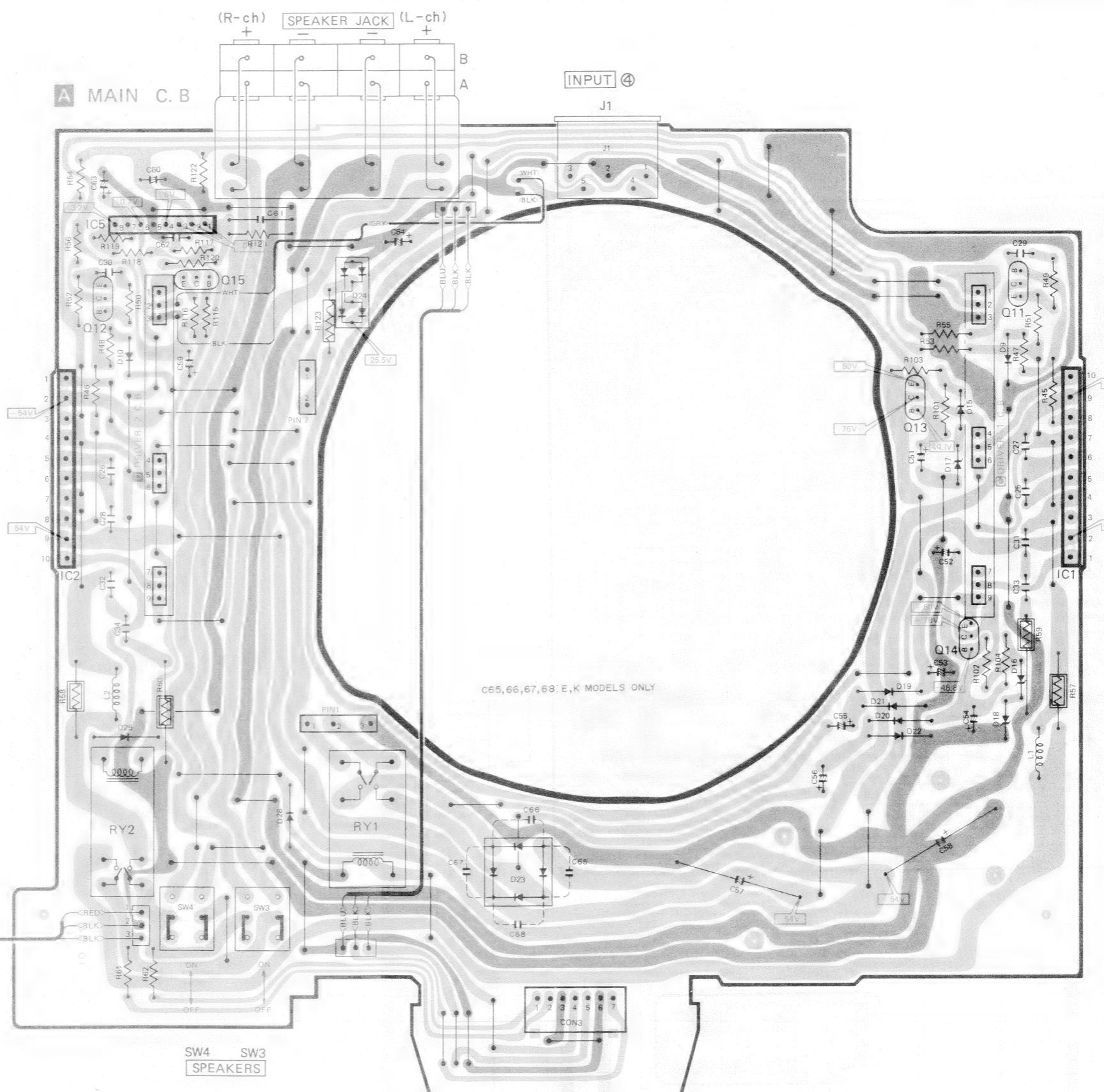
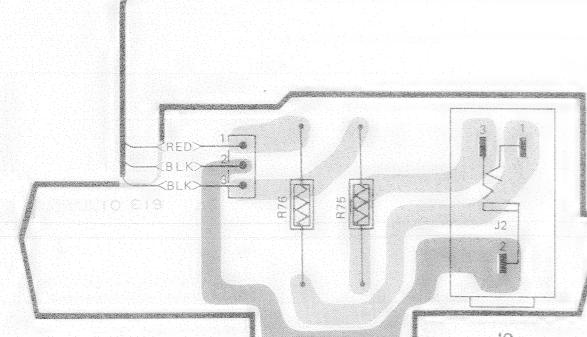
A

B

D DRIVER - 2 C. B

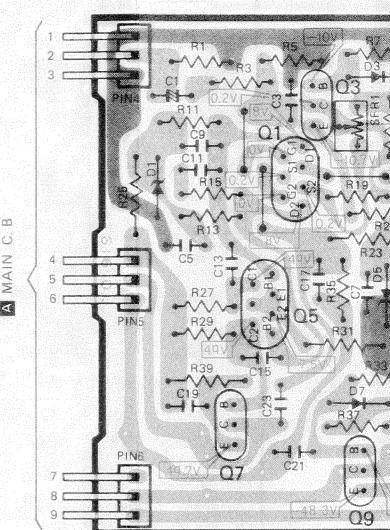


A MAIN C. B

SW4 SW3
SPEAKERS

E JACK C. B

C DRIVER - 1 C. B



1. DC Balance Adjustment

Settings:

- Input signal : No signal.
- Test point : Speaker out.
- Adjustment locations : SFR1 (L-ch)
SFR2 (R-ch)

Method: Adjust so that the voltage at the 0 ± 30mV.

parts which serve to maintain
e made to conform to special

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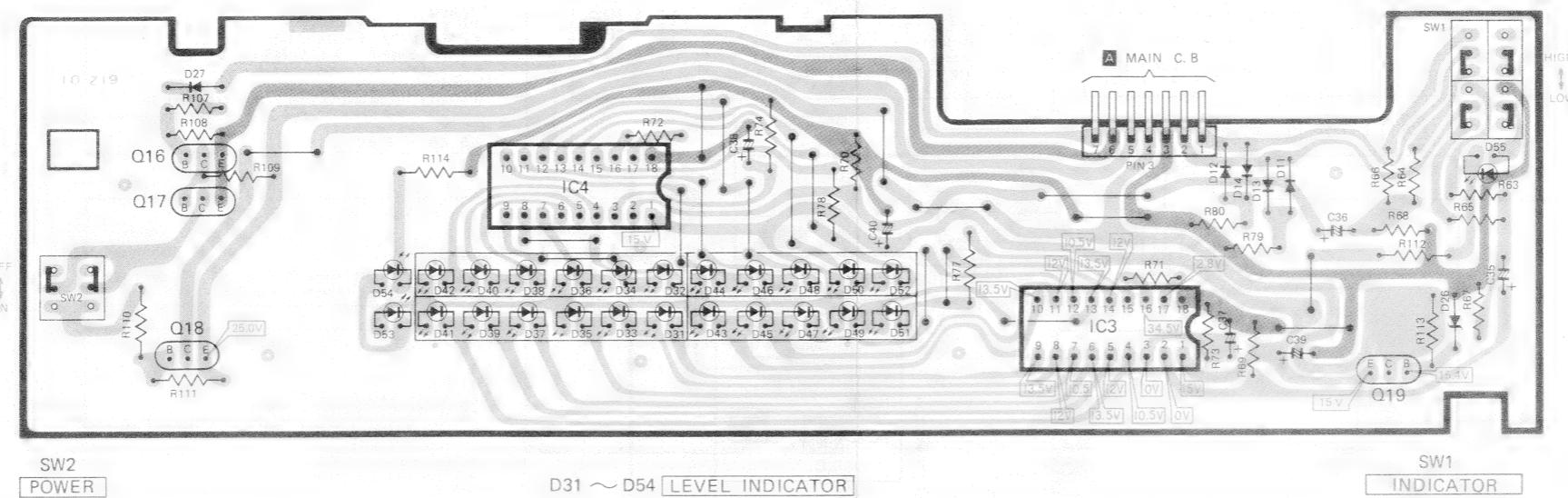
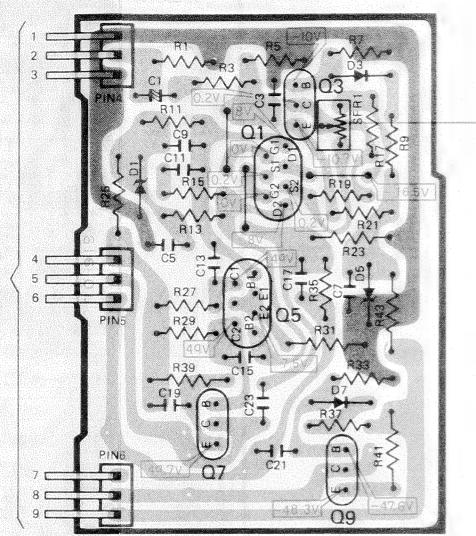
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27

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29

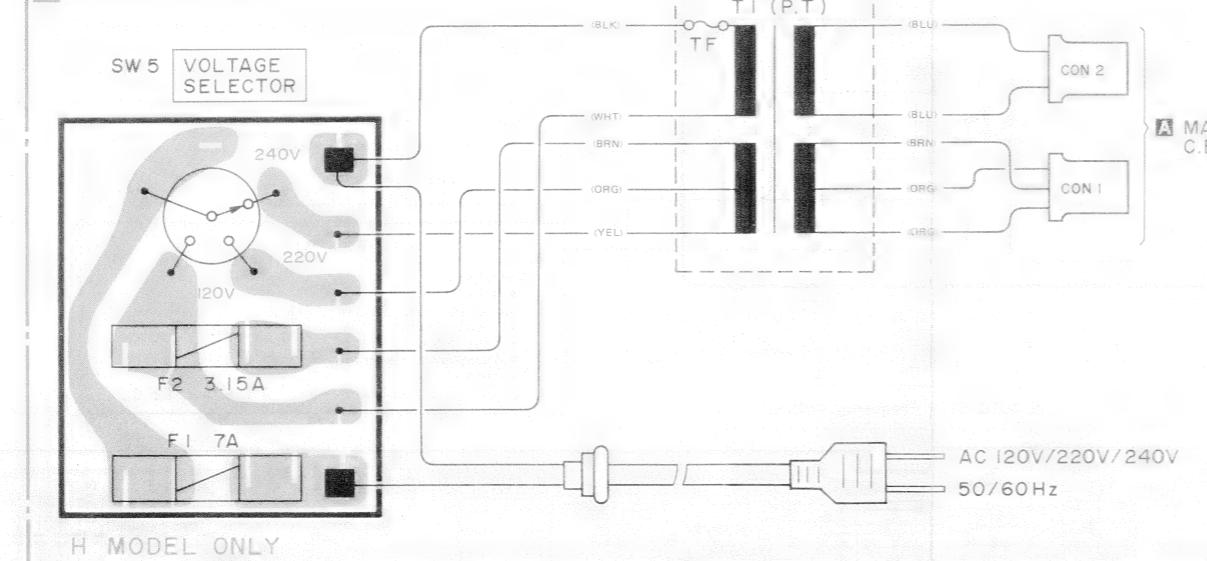
30

BX-110 H,HB,UB,E
EB,K,KB,GBX-110 H,HB,UB,E
EB,K,KB,G**B INDICATOR C. B****C DRIVER - 1 C. B**

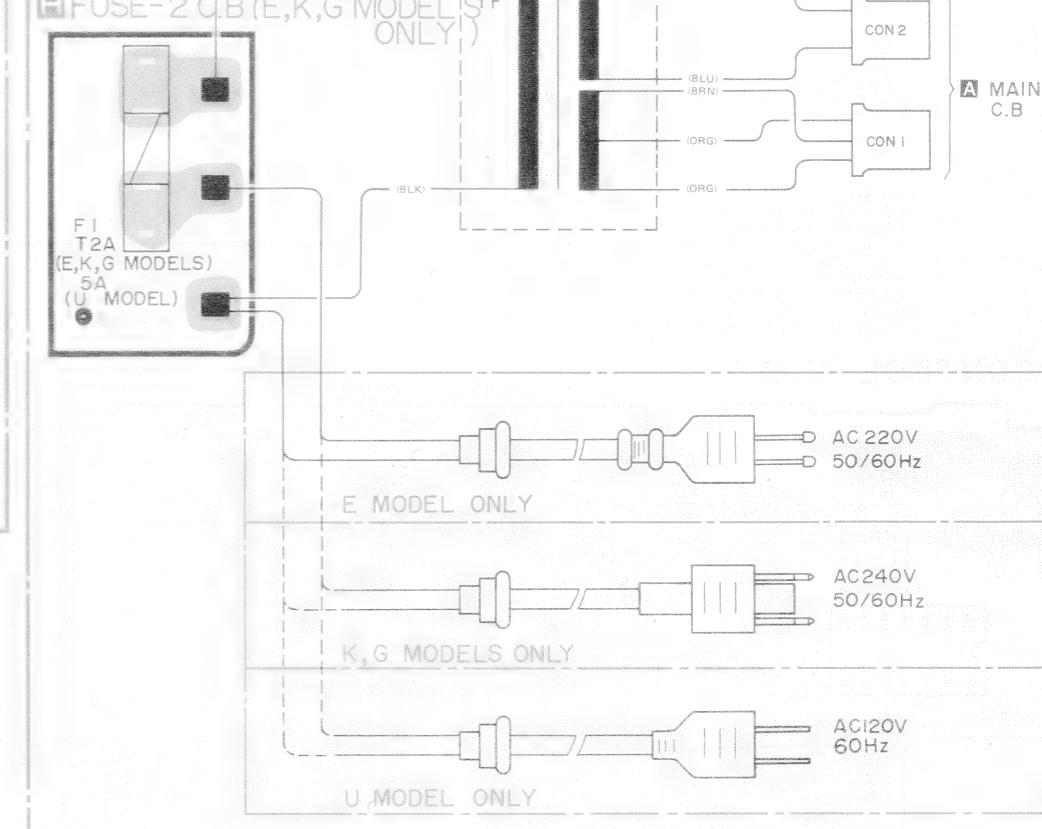
1. DC Balance Adjustment

Settings: • Input signal : No signal.
• Test point : Speaker out.
• Adjustment locations : SFR1 (L-ch)
 SFR2 (R-ch)

Method: Adjust so that the voltage at the test point is
 $0 \pm 30mV$.

G SWITCH C. B

H MODEL ONLY

F FUSE - 1 C. B (U MODEL ONLY)**H FUSE - 2 C. B (E,K,G MODEL IS ONLY)**

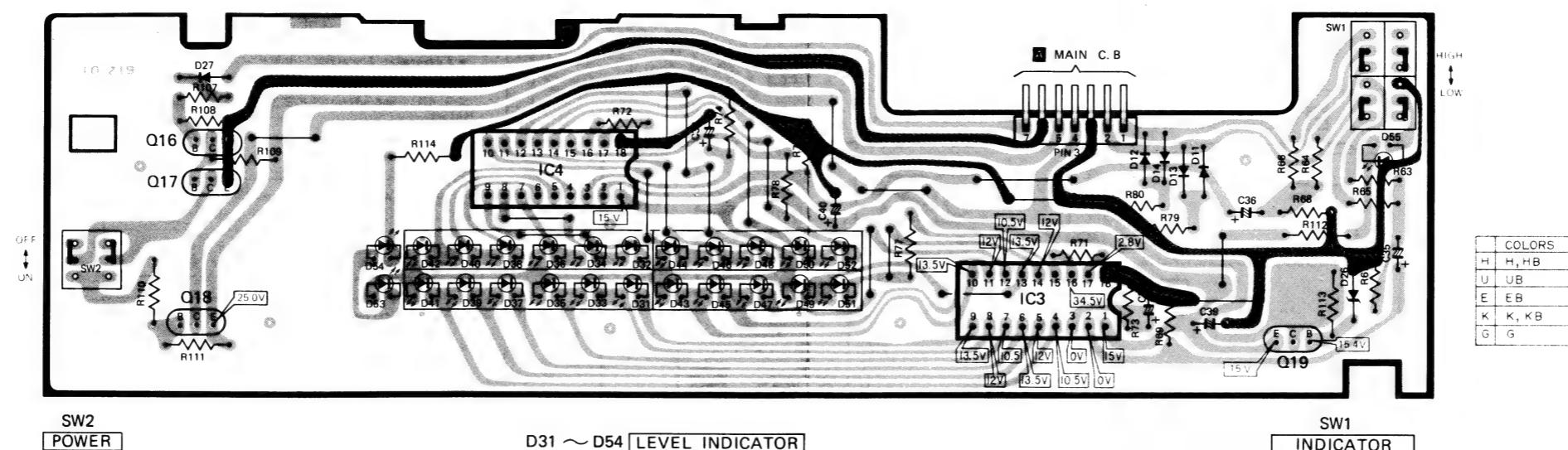
E MODEL ONLY

K, G MODELS ONLY

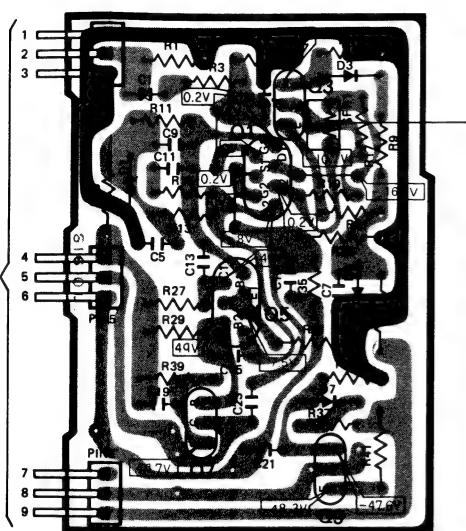
U MODEL ONLY

15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30

B INDICATOR C. B

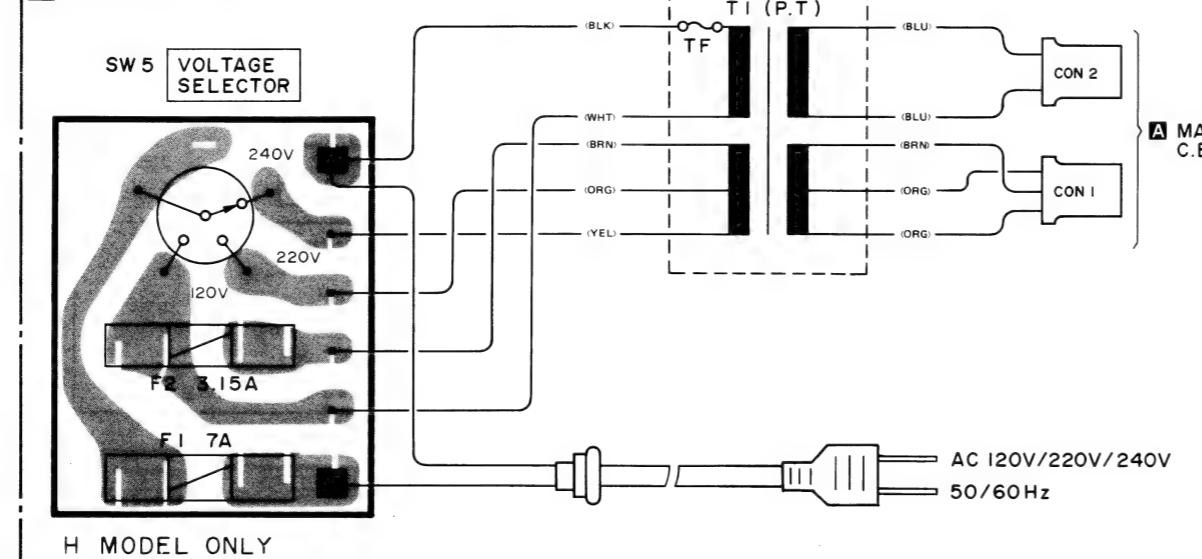


C DRIVER - 1 C. B

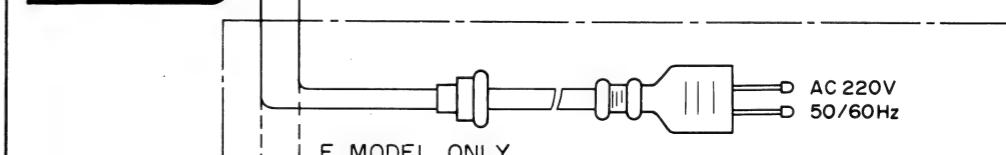
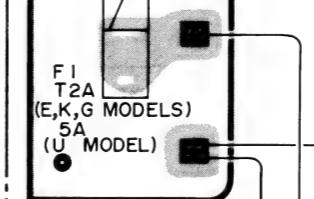
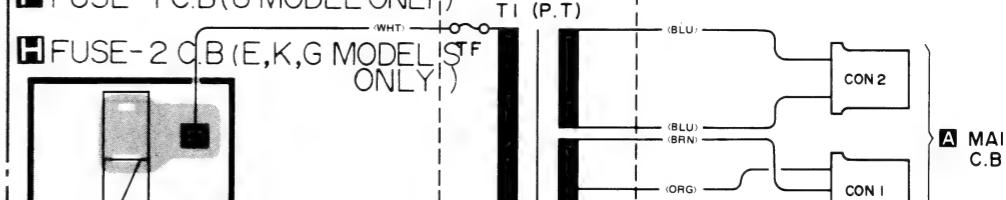
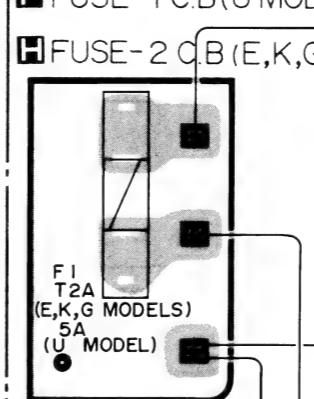


1. DC Balance Adjustment
Settings:
 • Input signal : No signal.
 • Test point : Speaker out.
 • Adjustment locations : SFR1 (L-ch)
 SFR2 (R-ch)
Method: Adjust so that the voltage at the test point is
 $0 \pm 30\text{mV}$.

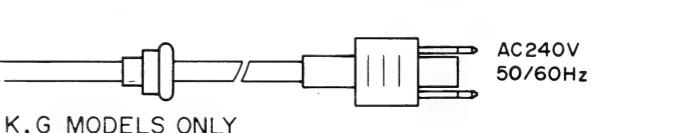
G SWITCH C.B



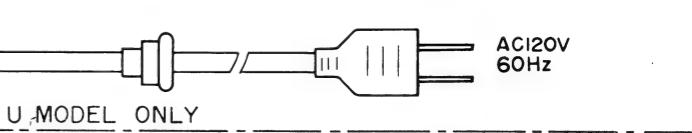
F FUSE - 1 C.B (U MODEL ONLY)



E MODEL ONLY



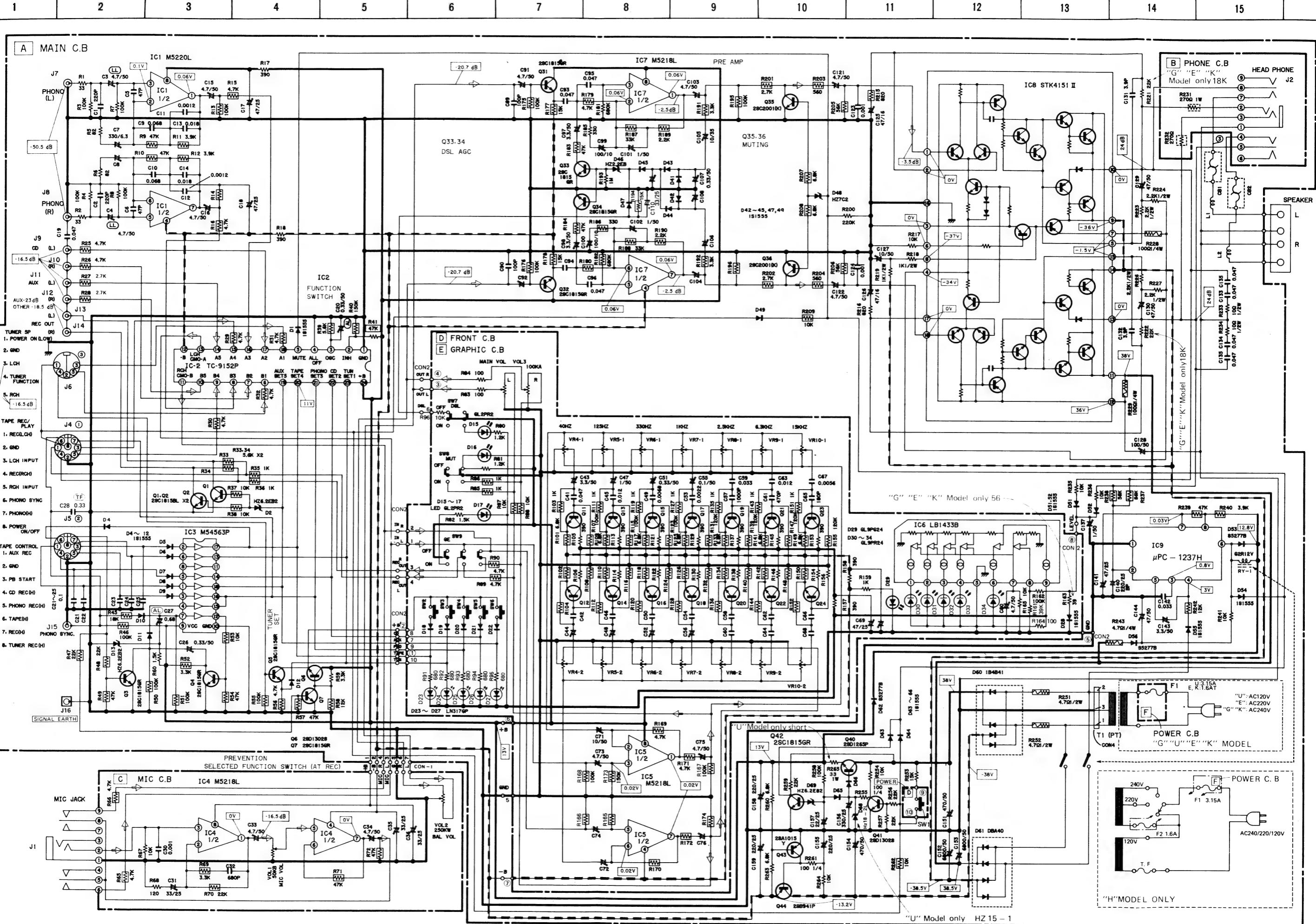
K, G MODELS ONLY

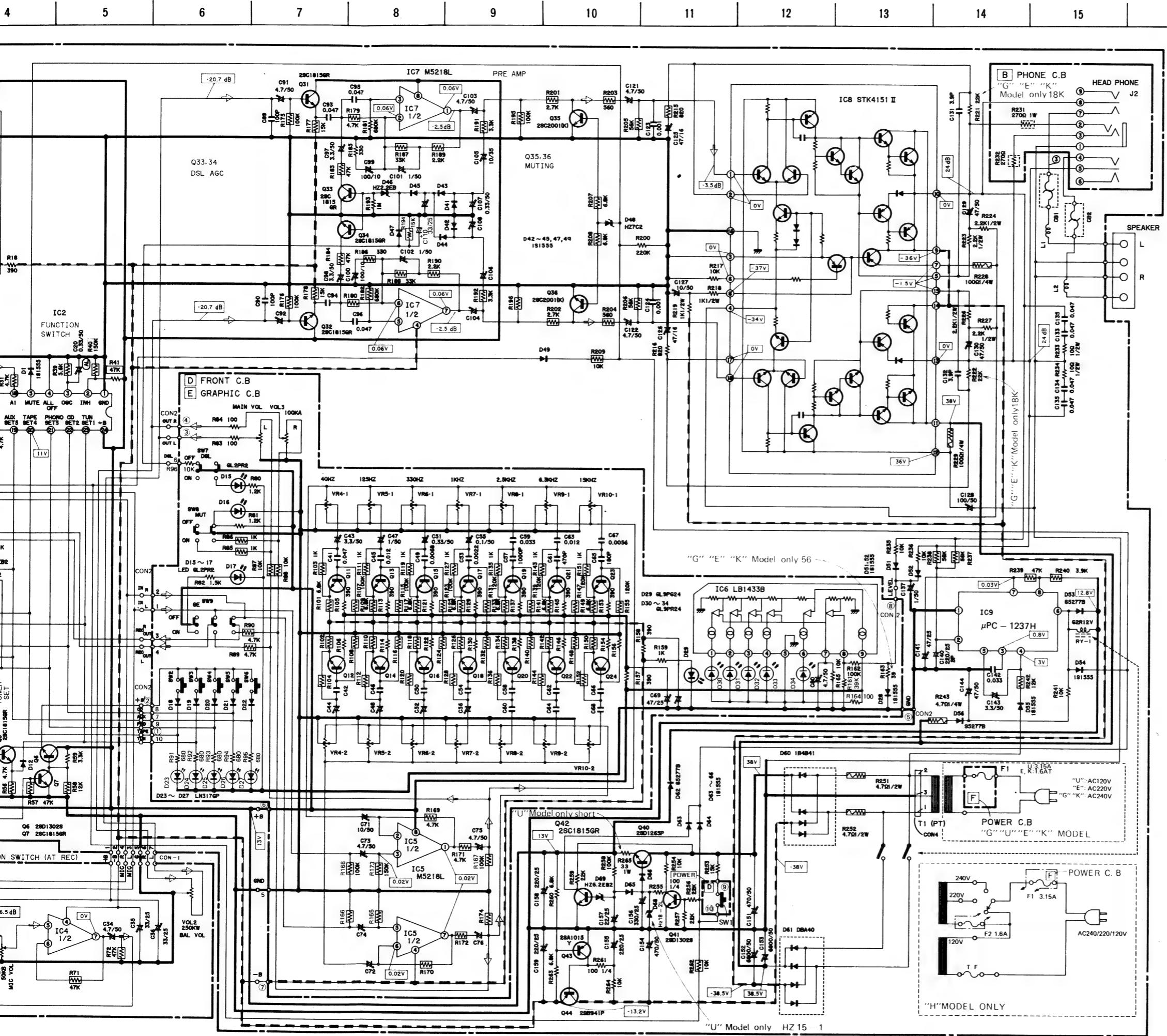


U MODEL ONLY

E, K, G, U MODELS ONLY

SCHEMATIC DIAGRAM (MX-90)





NOTES:

- B (+) power supply B (-) power supply
- Signal path
- The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. But () is with AM reception or recording.
- Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.
- Capacitors with no designation have a dielectric strength of less than 50V.
- The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
- Ceramic capacitor symbols:
 - For temperature compensation (SL)
 - High dielectric constant system (YY)
 - High dielectric constant system (YW, YP, YZ)
 - Semiconductor ceramic
 - For temperature compensation (SH)
- Explanation of symbols:
 - Mylar capacitor
 - Aluminum solid capacitor
 - Polypropylene film capacitor
 - Bi-polarized capacitor
 - Low-leakage capacitor
 - Tantalum capacitor
 - Styrol capacitor
 - Printed resistor
 - Fuse resistor
 - Nonflammable resistor
 - Low noise resistor

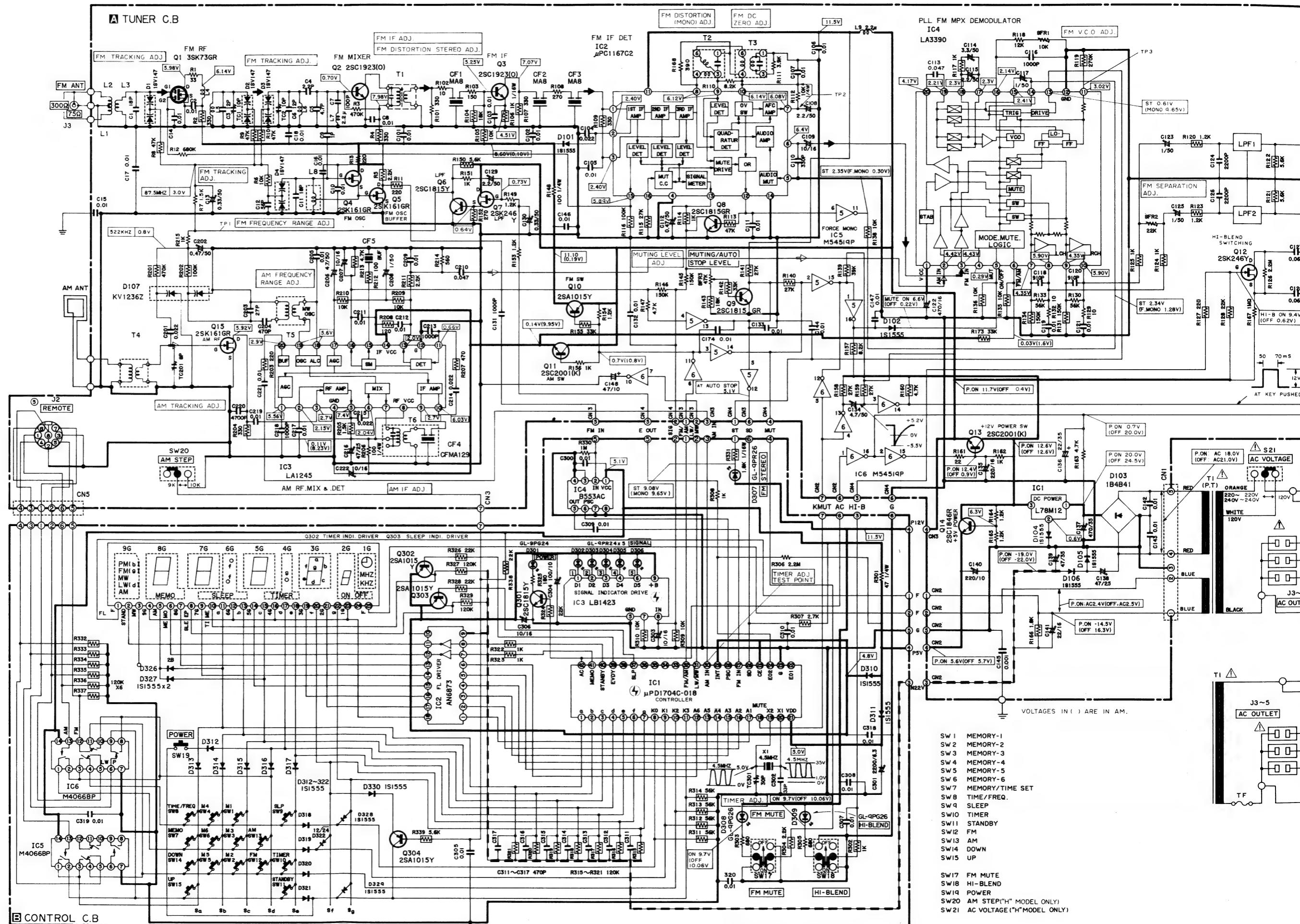
Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.

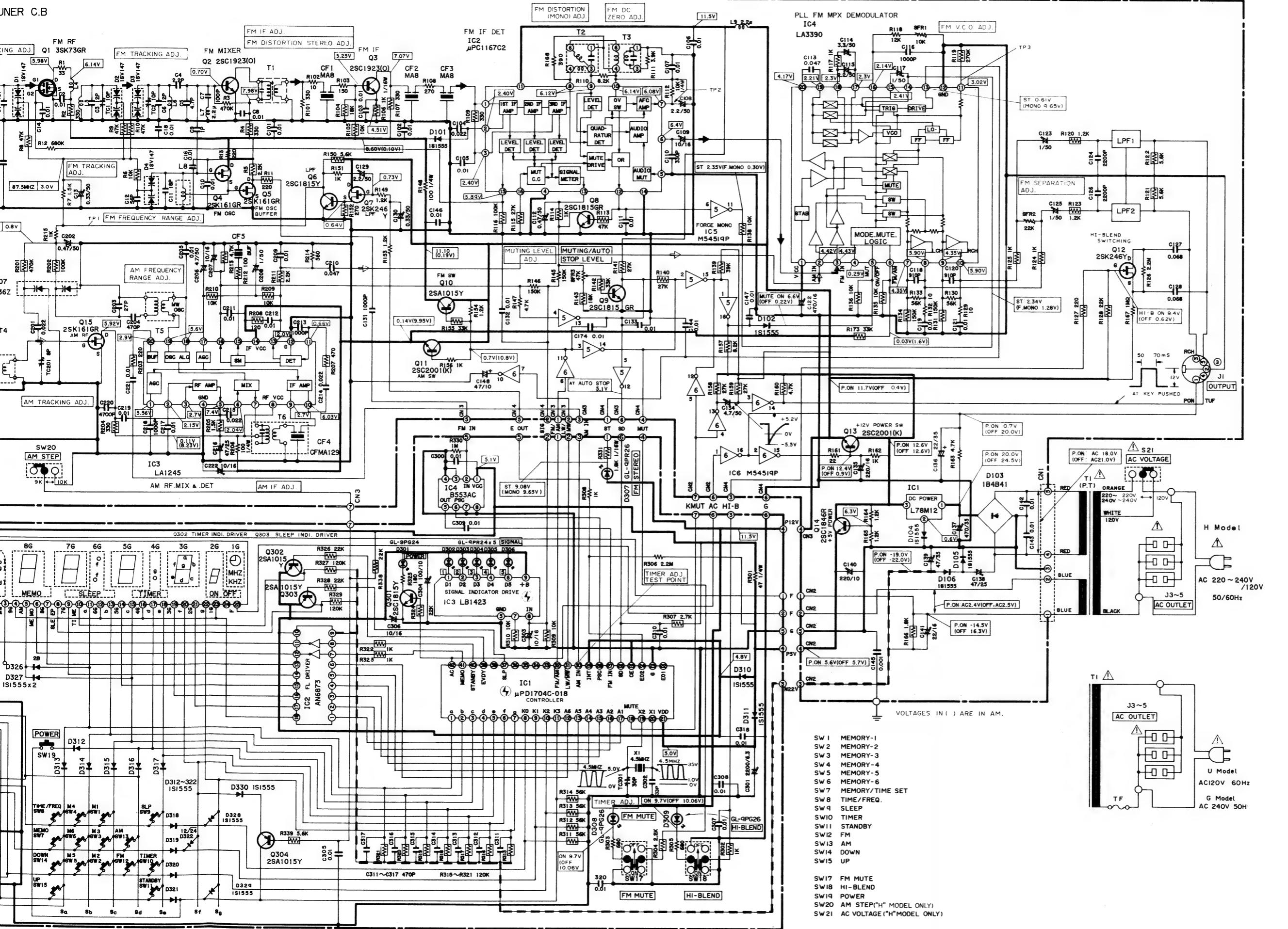
SCHEMATIC DIAGRAM (TX-110 H, U, G)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

JUNER C.B



ELECTRICAL MAIN PARTS LIST

"***" shows unavailable Repair Part.

Symbol No.	Part No.	Description	Remark
< MAIN CIRCUIT BOARD SECTION >			
PCB-A	*	Main circuit board	
I C1	87-027-925-01	I.C. M5220	
I C2	87-027-978-01	I.C. TC9152P	
I C3	87-020-145-01	I.C. M54563	
I C7	87-027-895-01	I.C. M5218L	
I C8	87-020-090-01	I.C. STK-4151-2	
I C9	87-027-787-01	I.C. MPC1237H	
Q1.2	89-318-156-01	Transistor, 2SC1815BL	
Q3.4.5.7.31. 32.33.34.42	89-318-155-01	Transistor, 2SC1815GR	
Q6.41	89-413-023-01	Transistor, 2SD1302S	
Q13	89-110-155-01	Transistor, 2SA1015(GR)	
Q35.36	89-320-011-01	Transistor, 2SC2001(K)	
Q40	89-412-653-01	Transistor, 2SD1265(O)	
Q44	89-209-412-31	Transistor, 2SB941(PQ)	
D1.4.5.6.7.8. 9.10.11.12. 41.42.43.44. 45.47.49.51. 52.54.55.57. 63.64.65.66	89-027-097-01	Diode, 1S1555	
D2.13.69	87-027-431-01	Zener diode, RD6.2EB2	
D45	87-027-405-01	Zener diode, RD2.2EB	
D48	87-027-606-01	Zener diode, HZ7C2L	
D53.56.62	87-027-365-01	Diode, S5277B	
D60	87-027-376-01	Diode, 1B4B41	
D61	87-020-144-01	Diode, DBA4D0	
D68	87-027-347-01	Zener diode, HZ18-2L (E, EB, K, KB, G models only)	
D68	87-027-508-01	Zener diode, HZ15-1 (UB model only)	
L1.2	87-005-158-01	Inductor coil 1uH	
RY1	87-045-201-01	Relay G2R 12V	
CB1.2	87-030-077-01	Circuit breaker, 2.2A	
	82-795-613-01	Speaker terminal, 4P	
J4.5.6	82-798-626-01	Pin jack ass'y (REC/PLAY, CONTROL, TUNER)	★★★
J7.8.9.10.11. 12.13.14.15	81-731-614-01	Pin Jack ass'y (PHONO, CD, AUX, RECOUP)	
CON2.3	82-798-643-01	Heatsink	★★★
CON4	87-049-367-01	Connector ass'y, 10P	★★★
	87-032-897-01	Connector ass'y, 3P	★★★
PIN1	87-049-277-01	Pin, 7P	★★★
< PHONO CIRCUIT BOARD SECTION >			
PCB-B	*	Phono circuit board	
J2	87-049-352-01	Jack, 6.3mm w/switch (HEADPHONE)	

Symbol No.	Part No.	Description	Remark
< Resistor >			
R231.232	87-025-154-01	270Ω 1W Metal film	
< MIC CIRCUIT BOARD SECTION >			
PCB-C	*	MIC circuit board	
I C4	87-027-895-01	I.C. M5218L	
J1	82-675-661-01	Jack, 6.3mm w/switch (MIC)	
VR2	87-021-847-01	Volume, 250kΩ-W(BALANCE)	
VR3	87-021-848-01	Volume, 50kΩ-B(MIC VOLUME)	
CON1	82-798-640-01	Connector ass'y 7P	
< Capacitors >			
C30	87-018-044-11	0.01μF Ceramic	
C32	87-018-042-01	6.80μF Ceramic	
< FRONT CIRCUIT BOARD SECTION >			
PCB-D	*	Front circuit board	
I C5	87-027-895-01	I.C. M5218L	
D15.16.17	87-020-128-01	LED, GL-2PR2(MUT, DSL, REC OUT)	
D23.24.25.26	87-027-543-01	LED, LN317GP(TAPE, TUNER, PHONO, CD)	
D29	87-020-130-01	LED, GL-9PG24	
D30.31.32.33. 34	87-020-127-01	LED, GL-9PR24(LEVEL)	
VR3	87-021-845-01	Slide volume, 100kΩ-W(VOLUME)	
VR4.5.6.7.8. 9.10	87-021-846-01	Slide volume, 250kΩ-W(EQUALIZER VOL)	
SW1	87-031-692-01	Push-switch(POWER)	
SW2.3.4.5.6	87-031-771-01	Tact switch(TUNER, TAPE, PHONE, CD, AUX)	
SW7.8.9	87-031-815-01	Push-switch(MUT, DSL, REC OUT)	
PIN2.3	87-049-366-01	Pin, 20P	
< Capacitor >			
C73.74.75.76. 80	87-015-698-01	4.7μF 50V Electrolytic	
< GRAPHIC CIRCUIT BOARD SECTION >			
PCB-E	*	GRAPHIC circuit board	
Q11.12.13.14. 15.16.17.18. 19.20.21.22. 23.24	89-318-155-01	Transistor, 2SC1815(GR)	
< Capacitors >			
C43.44	87-015-697-01	3.3μF 50V Electrolytic	
C47.48	87-015-695-01	1μF 50V Electrolytic	
C51.52	87-015-693-01	0.33μF 50V Electrolytic	
C55.56	87-015-691-01	0.1μF 50V Electrolytic	
C57.58	87-018-044-01	1000pF Ceramic	
C61.62	87-018-040-81	470pF Ceramic	
C65.66	87-018-035-81	180pF Ceramic SL	

Symbol No.	Part No.	Description	Remark
< POWER CIRCUIT BOARD SECTION >			
△PCB-F	*	Power circuit board (H, HB models only)	
△PCB-F	*	Power circuit board (UB, E, EB, K, KB, G models only)	
△F1	87-035-256-01	Fuse, 3.15A (H, HB models only)	
△F1	87-035-302-01	Fuse, 3.15A (UB model only)	
△F1	87-035-224-01	Fuse, 1.6A "T" (E, EB, K, KB, G models only)	
△F2	87-035-252-01	Fuse, 1.6A (H, HB models only)	
△S1	87-031-586-01	Rotary switch(VOLTAGE SELECTOR) (H, HB models only)	
	87-098-045-01	Fuse label 3.15A (H, HB, UB models only)	
	87-098-018-01	Fuse label 1.6A "T" (E, EB, K, KB, G models only)	★★★
	87-098-042-01	Fuse label 1.6A (H, HB models only)	★★★
	87-033-147-01	Fuse clamp	
< MISCELLANEOUS >			
△TI	82-798-617-01	Power transformer (H, HB models only)	
△TI	82-798-618-01	Power transformer (UB models only)	
△TI	82-798-619-01	Power transformer (E, EB models only)	
△TI	82-798-620-01	Power transformer (K, KB, G models only)	
	87-034-962-01	AC power cord (H model only)	
	87-034-992-01	AC power cord (HB model only)	
	87-034-578-01	AC power cord (UB model only)	
	82-788-674-01	AC power cord (E, EB models only)	
	87-034-708-01	AC power cord (K, KB, G models only)	
	87-085-184-01	Cord bushing (H, HB models only)	
	87-085-185-01	Cord bushing (UB model only)	
	87-085-185-01	Cord bushing (E, EB, KB, G models only)	

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board A 82-798-602-11

PCB-A 82-798-604-11

PCB-B 82-798-605-11

PCB-F 82-798-608-11 (H, HB models only)

PCB-F 82-798-607-11 (U, E, EB, K, KB, G models only)

Combination circuit board B 82-798-609-11

PCB-C 82-798-612-11

PCB-D 82-798-610-11

PCB-E 82-798-611-11

S/M Code No. 84-002

"★★★" shows unavailable Repair Part.

Description	Remark	Symbol No.	Part No.	Description			Remark
S A R D N >				< Resistor >			
		R231.232	87-025-154-01	270Ω	1W	Metal film	
		< M I C C I R C U I T B O A R D S E C T I O N >					
1-2		PCB-C	*	M I C circuit board			
H		IC4	87-027-895-01	I C, M5218L			
1815BL		J1	82-675-661-01	Jack, 6.3mm/switch (M I C)			
1815GR							
302S		VR2	87-021-847-01	Volume, 250kΩ-W(BALANCE)			
015(GR)		VR3	87-021-848-01	Volume, 50kΩ-B(MIC VOLUME)			
2001(K)		CON1	82-798-640-01	Connector ass'y 7P			
265(O)							
341(PQ)		< Capacitors >					
		C30	87-018-044-11	0.01μF		Ceramic	
		C32	87-018-042-01	680pF		Ceramic	
		< F R O N T C I R C U I T B O A R D S E C T I O N >					
.2EB2		PCB-D	*	Front circuit board			
.2EB		IC5	87-027-895-01	I C, M5218L			
C2L		D15.16.17	87-020-128-01	LED, GL-2PR2(MUT, DSL, REC OUT)			
8-2L (E, EB, K,		D23.24.25.26	87-027-543-01	LED, LN317GP(TAPE, TUNER, PHONO, CD)			
5-1 (UB model only)		D29	87-020-130-01	LED, GL-9PG24			
V		D30.31.32.33.	87-020-127-01	LED, GL-9PR24(LEVEL)			
2A		34					
P	★ ★ ★	VR3	87-021-845-01	Slide volume, 100kΩ-W(VOLUME)			
C/PLAY, CON-	★ ★ ★	VR4.5.6.7.8.	87-021-846-01	Slide volume, 250kΩ-W(EQUALIZER VOL)			
ONO, CD, AUX,		9.10					
OP		SW1	87-031-692-01	Push-switch(POWER)			
P		SW2.3.4.5.6	87-031-771-01	Tact switch(TUNER, TAPE, PHONE, CD, AUX)			
s >		SW7.8.9	87-031-815-01	Push-switch(MUT, DSL, REC OUT)			
		PIN2.3	87-049-366-01	Pin, 20P			
	★ ★ ★						
	★ ★ ★			< Capacitor >			
	★ ★ ★						
	★ ★ ★	C73.74.75.76.	87-015-698-01	4.7μF	50V	Electrolytic	
		80					
		< G R A P H I C C I R C U I T B O A R D S E C T I O N >					
		PCB-E	*	GRAPHIC circuit board			
		Q11.12.13.14.	89-318-155-01	Transistor, 2SC1815(GR)			
		15.16.17.18.					
		19.20.21.22.					
		23.24					
		< Capacitors >					
		C43.44	87-015-697-01	3.3μF	50V	Electrolytic	
		C47.48	87-015-695-01	1μF	50V	Electrolytic	
		C51.52	87-015-693-01	0.33μF	50V	Electrolytic	
		C55.56	87-015-691-01	0.1μF	50V	Electrolytic	
		C57.58	87-018-044-01	1000pF		Ceramic	
		C61.62	87-018-040-81	470pF		Ceramic	
		C65.66	87-018-035-81	180pF		Ceramic SL	

Symbol No.	Part No.	Description	Remark
< P O W E R C I R C U I T B O A R D S E C T I O N >			
△PCB-F	*	Power circuit board (H, HB models only)	
△PCB-F	*	Power circuit board (UB, E, EB, K, KB, G models only)	
△F1	87-035-256-01	Fuse, 3.15A (H, HB models only)	
△F1	87-035-302-01	Fuse, 3.15A (UB model only)	
△F1	87-035-224-01	Fuse, 1.6A "T" (E, EB, K, KB, G models only)	
△F2	87-035-252-01	Fuse, 1.6A (H, HB models only)	
△S1	87-031-586-01	Rotary switch(VOLTAGE SELECTOR) (H, HB models only)	
	87-098-045-01	Fuse label 3.15A (H, HB, UB models only)	
	87-098-018-01	Fuse label 1.6A "T" (E, EB, K, KB, G models only)	★ ★ ★
	87-098-042-01	Fuse label 1.6A (H, HB models only)	
	87-033-147-01	Fuse clamp	★ ★ ★
< M I S C E L L A N E O U S >			
△TI	82-798-617-01	Power transformer (H, HB models only)	
△TI	82-798-618-01	Power transformer (UB models only)	
△TI	82-798-619-01	Power transformer (E, EB models only)	
△TI	82-798-620-01	Power transformer (K, KB, G models only)	
	87-034-962-01	AC power cord (H model only)	
	87-034-992-01	AC power cord (HB model only)	
	87-034-578-01	AC power cord (UB model only)	
	82-788-674-01	AC power cord (E, EB models only)	
	87-034-708-01	AC power cord (K, KB, G models only)	
	87-085-184-01	Cord bushing (H, HB models only)	
	87-085-189-01	Cord bushing (UB model only)	
	87-085-185-01	Cord bushing (E, EB, KB, G models only)	

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board A 82-798-602-11

PCB-A 82-798-604-11
PCB-B 82-798-605-11
PCB-F 82-798-608-11 (H, HB models only)
PCB-E 82-798-607-11 (L, E, EB, K, KB, G models only)

Combination circuit board B 82-798-609-11

Combination circuit board
PCB-C 82-798-612-11
PCB-D 82-798-610-11
PCB-E 82-798-611-11

ELECTRICAL MAIN PARTS LIST

"★★★" shows unavailable Repair Part.

Symbol No.	Part No.	Description	Remark
< TUNER CIRCUIT BOARD SECTION >			
PCB-A	*	Tuner circuit board	
I C1	87-020-140-01	I.C. L78M12	
I C2	87-027-993-01	I.C. μPCL167C2	
I C3	87-027-996-01	I.C. LA1245	
I C4	87-020-139-01	I.C. LA3390	
I C5.6	87-027-840-01	I.C. M54519P	
Q1	87-026-165-01	FET. 3SK73(GR)	
Q2.3	89-319-233-01	Transistor. 2SC1923(O)	
Q4.5.15	89-501-615-01	FET. 2SK161(GR)	
Q6	89-318-154-01	Transistor. 2SC1815(Y)	
Q7.12	89-502-464-01	FET. 2SK246(Y)	
Q8.9	89-318-155-01	Transistor. 2SC1815(GR)	
Q10	89-110-154-01	Transistor. 2SA1015(Y)	
Q11.13	89-320-011-01	Transistor. 2SC2001(K)	
Q14	89-318-464-01	Transistor. 2SC1846(R)	
Q16.17	89-320-011-01	Transistor. 2SC2001(K) (E, EB, K, KB models only)	
D1.2.3.4	87-027-900-01	Diode. 1SV147	
D101.102.104.105.106	87-027-097-01	Diode. 1S1555	
D103	87-027-376-01	Diode. 1B4B41	
D107	82-769-617-01	Diode. KV-1236Z-2	
D108	87-027-097-01	Diode. 1S1555 (E, EB, K, KB models only)	
L1	82-791-630-01	FM antenna coil	
L2	82-791-631-01	FM antenna coil	
L3.5.6	82-791-629-01	FM antenna coil	
L4	82-791-627-01	FM antenna coil	
L7.9	87-005-151-01	Choke coil. 2.2μH	
L8	82-791-633-01	FM OSC coil	
TC1.2	87-011-142-01	Trimmer. 10P	
TC201	87-011-108-01	Trimmer. 8P	
TC202	87-011-131-01	Trimmer. 30P (E, EB, K, KB models only)	
LPP1.2	82-794-684-01	Low-pass filter	
CF1.2.3	82-785-669-01	Ceramic filter. MA8H(R)	
CF4	82-795-675-01	Ceramic filter. MA. 450(129)	
CF5	82-794-670-01	Ceramic filter. BFU450C4N	
T1	82-794-683-01	FM IFT. 6T	
T2	82-794-695-01	FM quad coil(P)	
T3	82-794-696-01	FM quad coil(S)	
T4	82-794-699-01	MW antenna coil	
T5	82-794-687-01	MW OSC coil	
T7	82-794-700-01	LW antenna coil (E, EB, K, KB models only)	
T8	82-794-688-01	LW OSC coil (E, EB, K, KB models only)	
J1.2	82-799-632-01	Antenna terminal ass'y (OUTPUT, REMOTE, AM ANT, FM ANT) (H, HB, UB, G models only)	
J1.2	82-799-631-01	Antenna terminal ass'y (OUTPUT, REMOTE, AM ANT, FM ANT) (E, EB, models only)	
J1.2	82-799-634-01	Antenna terminal ass'y (OUTPUT, REMOTE, AM ANT, FM ANT) (K, KB models only)	
SW20	82-795-624-01	Slide switch (AM STEP) (H, HB, G models only)	
SFR1	87-021-742-01	Semi-fixed resistor. 10kΩ-B	
SFR2	87-021-743-01	Semi-fixed resistor. 22kΩ-B	
SFR3	87-021-689-01	Semi-fixed resistor. 47kΩ-B	
CN1	87-049-275-01	Pin. 5P	★★★
CN2.3	87-032-967-01	Pin. 7P	★★★
CN4.5	87-032-966-01	Pin. 6P	★★★

Symbol No.	Part No.	Description	Remark
< Capacitors >			
C1.11	87-018-014-01	1.8pF Ceramic	
C2.8.10.14.15.16.17.18.101.102.103.105.106.107.111.132.133.144.146.147.205.209.211.212.217.219.221	87-018-047-01	0.01μF 16V Ceramic	
C3.6	87-018-010-01	1.2pF Ceramic	
C4	87-018-002-01	2.2pF Ceramic	
C5	87-018-005-01	4.7pF Ceramic	
C7	87-018-032-01	1.00pF Ceramic	
C9	87-018-001-01	1pF Ceramic	
C12	87-018-026-01	5.6pF Ceramic	
C104.201.214.215	87-012-105-01	0.022μF Ceramic	
C110	87-018-038-01	3.3pF Ceramic	
C116	87-014-057-01	1.000pF PP	
C118.120	87-014-056-01	9.1pF PP	
C124.126	87-018-045-01	2.200pF Ceramic	
C131.145.213.218	87-018-044-01	1.000pF Ceramic	
C139	87-010-043-01	4.7pF 3.5V Electrolytic (UB model only)	
C140	87-010-045-01	1.00μF 2.5V Electrolytic (UB model only)	
C203	87-018-018-01	2.7pF Ceramic (H, HB, UB, G models only)	
C203	87-018-017-01	2.4pF Ceramic (E, EB, K, KB models only)	
C204	87-014-049-01	4.70pF PP	
C223	87-014-049-01	4.70pF PP (E, EB, K, KB models only)	
C224	87-018-030-01	8.2pF Ceramic (E, EB, K, KB models only)	
< CONTROL CIRCUIT BOARD SECTION >			
PCB-B	*	Control circuit board	
④ I C1	87-020-232-01 (87-027-997-01)	I.C. μPD1704C-026 (I.C. μPD1704C-018)	
I C2	87-027-994-01	I.C. AN6873	
I C3	87-020-129-01	I.C. LB1423	
I C4	87-027-752-01	I.C. 553AC	
④ I C5.6	87-020-096-01	I.C. M4066BP	
Q301	89-318-154-01	Transistor. 2SC1815(Y)	
Q302.303	89-110-154-01	Transistor. 2SA1015(Y)	
Q304	89-110-154-01	Transistor. 2SA1015(Y) (H, HB, UB, G models only)	
D301	87-020-130-01	LED. GL-9PG24 (POWER)	
D302.303.304.305.306	87-020-127-01	LED. GL-9PR24 (SIGNAL 1~5)	
D307	87-020-152-01	LED. GL-9PG24 (FM STEREO)	
D308.309	87-020-153-01	LED. GL-9PG26 (FM MUTE, HI-BLEND)	
D310.311.312.	87-027-097-01	Diode. 1S1555	
313.314.315.			
316.317.318.			
319.320.321.			
322.328.329.			
330			

Symbol No.	Part No.	Description	Remark
D326.327.	87-027-097-01	Diode. 1S1555 (H, HB, UB, G models only)	
FL	82-795-620-01	FL. 9MT21ZK	
X1	82-769-613-01	Crystal. 4.5M	
TC301	87-011-131-01	Trimmer. 30P	
SW1.2.3.4.5.6.7.8.9.10.11.12.13.14.15	87-031-771-01	Tact switch (PRESET, STATION 1~6, MEMORY/TIME SET, TIME/FREQ, SLEEP, TIMER, STANDBY, FM, AM, DOWN, UP)	
SW13.16	87-031-771-01	Tact switch (MW, LW) (E, EB, K, KB models only)	
SW17.18	87-031-760-01	Push switch (FM MUTE, HI-BLEND)	
SW19	87-031-750-01	Push switch (POWER)	
< Capacitors >			
C301	87-015-990-01	2.200μF 6.3V Electrolytic	
C302	87-018-020-01	3.3pF Ceramic	
C300.305.307.	87-018-047-01	0.01μF 16V Ceramic	
308.309.310.			
318.319.320.			
C311.312.313.	87-018-040-01	4.70pF Ceramic	
314.315.316.			
317			
< POWER CIRCUIT BOARD SECTION > = "E, EB, K, KB, G" models			
△PCB-C	82-799-613-01	Power circuit board	
△J3.4.5	87-049-414-01	AC outlet (E, EB models only)	
△J3.4.5	87-049-416-01	AC outlet (K, KB, G models only)	
△F1	87-035-139-01	Fuse. "T" 2.5A (E, EB models only)	
△	87-033-147-01	Fuse clamp (E, EB models only)	
< MISCELLANEOUS >			
△TI	82-799-604-01	Power transformer (H, HB models only)	
△TI	82-799-602-01	Power transformer (UB model only)	
△TI	82-799-603-01	Power transformer (E, EB, K, KB, G models only)	
△SW21	87-031-617-01	Slide switch (AC VOLTAGE SELECTOR) (H, HB models only)	
△	87-034-956-01	AC power cord (H model only)	
△	87-034-958-01	AC power cord Black (HB model only)	
△	87-034-578-01	AC power cord Black (UB model only)	
△	87-034-877-01	AC power cord (E, EB models only)	
△	87-034-975-01	AC power cord (K, KB models only)	
△	87-034-892-01	AC power cord (G model only)	
△J3.4.5	87-049-365-01	AC outlet 3P UNSW (H, HB, UB models only)	
△	87-085-184-01	Cord bushing (H, HB, UB models only)	
△	87-085-185-01	Cord bushing (E, EB, K, KB, G models only)	

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 82-799-610-21

PCB-A 82-799-611-21

Parts unavailable Repair Part.

Remark	Symbol No.	Part No.	Description	Remark	Symbol No.	Part No.	Description	Remark
R D			< Capacitors >		D326.327.	87-027-097-01	Diode. 1S1555 (H, HB, UB, G models only)	
	C1.11	87-018-014-01	1.8 pF	Ceramic	FL	82-795-620-01	FL. 9MT21ZK	
	C2.8,10,14, 15,16,17,18, 101,102,103, 105,106,107, 111,132,133, 144,146,147, 205,209,211, 212,217,219, 221	87-018-047-01	0.01 μF 16 V	Ceramic	X1	82-769-613-01	Crystal. 4.5M	
	C3.6	87-018-010-01	1.2 pF	Ceramic	TC301	87-011-131-01	Trimmer. 30P	
	C4	87-018-002-01	2.2 pF	Ceramic	SW1.2,3,4,5, 6,7,8,9, 10,11,12, 13,14,15	87-031-771-01	Tact switch (PRESET, STATION 1~6, MEMORY/TIME SET, TIME/FREQ, SLEEP, TIMER, STANDBY, FM, AM, DOWN, UP)	
	C5	87-018-005-01	4.7 pF	Ceramic	SW13.16	87-031-771-01	Tact switch (MW, LW) (E, EB, K, KB models only)	
	C7	87-018-032-01	1.00 pF	Ceramic	SW17.18	87-031-760-01	Push switch (FM MUTE, HI-BLEND)	
	C9	87-018-001-01	1 pF	Ceramic	SW19	87-031-750-01	Push switch (POWER)	
(E, EB, K,	C12	87-018-026-01	5.6 pF	Ceramic			< Capacitors >	
	C104,201,214, 215	87-012-105-01	0.022 μF	Ceramic	C301	87-015-990-01	2200 μF 6.3V Electrolytic	
	C110	87-018-038-01	3.30 pF	Ceramic	C302	87-018-020-01	3.3 pF Ceramic	
	C116	87-014-057-01	1.000 pF	PP	C300,305,307, 308,309,310, 318,319,320	87-018-047-01	0.01 μF 16 V Ceramic	
	C118,120	87-014-056-01	9.10 pF	PP	C311,312,313, 314,315,316, 317	87-018-040-01	4.70 pF Ceramic	
	C124,126	87-018-045-01	2.200 pF	Ceramic				
	C131,145,213, 218	87-018-044-01	1.000 pF	Ceramic				
K. KB	C139	87-010-043-01	4.7 μF 3.5V	Electrolytic (UB model only)				
	C140	87-010-045-01	1.00 pF 2.5V	Electrolytic (UB model only)	△PCB-C	82-799-613-01	Power circuit board	
	C203	87-018-018-01	2.7 pF	Ceramic (H, HB, UB, G models only)	△J3.4,5	87-049-414-01	AC outlet (E, EB models only)	
	C203	87-018-017-01	2.4 pF	Ceramic (E, EB, K, KB models only)	△J3.4,5	87-049-416-01	AC outlet (K, KB, G models only)	
	C204	87-014-049-01	4.70 pF	PP	△F1	87-035-139-01	Fuse, "T" 2.5A (E, EB models only)	
	C223	87-014-049-01	4.70 pF	PP (E, EB, K, KB models only)	△	87-033-147-01	Fuse clamp (E, EB models only)	
	C224	87-018-030-01	8.20 pF	Ceramic (E, EB, K, KB models only)				
			< CONTROL CIRCUIT BOARD SECTION >					
	PCB-B	*	Control circuit board		△T1	82-799-604-01	Power transformer (H, HB models only)	
KB models	④ IC1	87-020-232-01 (87-027-997-01)	1C. μPD1704C-026 (1C. μPD1704C-018)		△T1	82-799-602-01	Power transformer (UB model only)	
KB models	IC2	87-027-994-01	1C. AN6873		△T1	82-799-603-01	Power transformer (E, EB, K, KB, G models only)	
UT, RE- NT)	IC3	87-020-129-01	1C. LB1423		△SW21	87-031-617-01	Slide switch (AC VOLTAGE SELECTOR) (H, HB models only)	
UT, AN-	IC4	87-027-752-01	1C. 553AC		△	87-034-956-01	AC power cord (H model only)	
UT, AN-	④ IC5,6	87-020-096-01	1C. M4066BP		△	87-034-958-01	AC power cord Black (HB model only)	
UT, AN-	Q301	89-318-154-01	Transistor. 2SC1815(Y)		△	87-034-578-01	AC power cord Black (UB model only)	
UT, AN-	Q302,303	89-110-154-01	Transistor. 2SA1015(Y)		△	87-034-877-01	AC power cord (E, EB models only)	
, HB, G	Q304	89-110-154-01	Transistor. 2SA1015(Y) (H, HB, UB, G models only)		△	87-034-975-01	AC power cord (K, KB models only)	
	D301	87-020-130-01	LED. GL-9PG24 (POWER)		△	87-034-892-01	AC power cord (G model only)	
	D302,303,304, 305,306	87-020-127-01	LED. GL-9PR24 (SIGNAL 1~5)		△J3.4,5	87-049-365-01	AC outlet 3P UNSW (H, HB, UB models only)	
	D307	87-020-152-01	LED. GL-9PG24 (FM STEREO)		△	87-085-184-01	Cord bushing (H, HB, UB models only)	
	D308,309	87-020-153-01	LED. GL-9PG26 (FM MUTE, HI-BLEND)		△	87-085-185-01	Cord bushing (E, EB, K, KB, G models only)	
	D310,311,312, 313,314,315, 316,317,318, 319,320,321, 322,328,329, 330	87-027-097-01	Diode. 1S1555					
★ ★ ★								
★ ★ ★								
★ ★ ★								

Note: Combination Circuit Board

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Combination circuit board 82-799-610-21**PCB-A 82-799-611-21****PCB-B 82-799-612-21**

ELECTRICAL MAIN PARTS LIST

"***" shows unavailable Repair Part.

Symbol No.	Part No.	Description	Remark
< MAIN CIRCUIT BOARD SECTION >			
PCB-A	*	Main circuit board	
IC1	87-027-925-01	IC, M5220	
IC2	87-027-978-01	IC, TC9152P	
IC3	87-020-145-01	IC, M54563	
IC4	87-020-216-01	IC, M51133P	
IC5	87-027-895-01	IC, M5218L	
④ IC6	87-027-828-01	IC, TC9134P	
④ IC7.8.9	87-027-723-01	IC, TC4049BP	
IC10	87-027-948-01	IC, M54514AP	
Q1.2	89-318-156-01	Transistor, 2SC1815(BL)	
Q3.4.5.6.9.	89-318-155-01	Transistor, 2SC1815(GR)	
10.11.12.13.			
14.17.18.20.			
24.55.56.57.			
58.61.62			
Q7	89-413-023-01	Transistor, 2SD1302S	
Q15.16	89-320-011-01	Transistor, 2SC2001K	
Q19.23	89-414-064-51	Transistor, 2SD1406(Y, GR)	
Q21	89-107-335-01	Transistor, 2SA733K	
Q22	89-210-154-51	Transistor, 2SB1015(Y, GR)	
Q25	89-502-464-01	FET, 2SK246Y	
Q59.60	89-110-155-01	Transistor, 2SA1015(GR)	
D1.40	87-027-606-01	Zener diode, HZ7C2L	
D2.3.4.5.6.7.	87-027-097-01	Diode, 1S1555	
8.9.10.11.			
12.14.15.16.			
17.18.19.21.			
22.23.24.25.			
26.29.30.32.			
41.42.64			
D13.31.63	87-027-332-01	Zener diode, HZ6B1L	
D28	87-027-416-01	Zener diode, HZ3C2	
D34	87-027-376-01	Diode, 1B4B4I	
D35.37.38	87-027-365-01	Diode, S5277B	
D36	87-027-449-01	Zener diode, HZ15-3L	
D39	87-027-364-01	Zener diode, HZ12A3L	
J1.2.3.4.5.6.	81-731-614-01	Pin jack ass'y(PHONO, CD, AUX, REC OUT, SIGNAL EARTH, PLAYER SYNC)	
7.8.9.			
J10.11.12.13.	81-731-616-01	DIN jack ass'y(TUNER, REC/PLAY, CONTROL, TUNER, CONTROL, DECK CONTROL, PLAYER START/CUT, OUTPUT)	
14.15.16			
X1	87-008-246-01	Ceramic resonator CSB455EB	
PIN1	87-032-897-01	Pin, 3P	★★★
PIN2	87-049-276-01	Pin, 6P	★★★
PIN3	87-032-903-01	Pin, 3P	★★★
PIN4.7	87-049-277-01	Pin, 7P	★★★
PIN5.6	87-049-278-01	Pin, 8P	★★★
< CAPACITORS >			
C1.2	87-018-036-01	2.20pF Ceramic	
C3.4	87-015-953-01	4.7μF 3.5V Electrolytic LL	
C5.6.25.26	87-018-024-01	4.7pF Ceramic	
C52.53	87-018-032-01	1.00pF Ceramic	
C54.55.56	87-015-421-01	0.22μF 2.5V Aluminum solid	
C73.149	87-018-047-01	0.01μF 1.6V Ceramic	
< FRONT CIRCUIT BOARD SECTION >			
PCB-B	*	Front circuit board	
Q41.42.43.44.	89-318-155-01	Transistor, 2SC1815(GR)	
45.46.47.48.			

Symbol No.	Part No.	Description	Remark
< CAPACITORS >			
49.50.51.52.	87-015-697-01	3.3μF 5.0V Electrolytic	
53.54	87-015-695-01	1μF 5.0V Electrolytic	
< GEQ CIRCUIT BOARD SECTION >			
PCB-C	*	GEQ circuit board	
IC18	87-027-895-01	IC, M5218L	
D50.51.52.53.	87-027-097-01	Diode, 1S1555	
54			
D55.56.57.58.	87-027-543-01	LED, LN317GP(TAPE, TUNER, PHONO, CD, AUX)	
59			
D60.61.62	87-020-128-01	LED, GL-2PR2(DSL, REC OUT, MUTING)	
VR3.4.5.6.7.	87-021-846-01	Slide volume, 250kΩ·W(GRAPHIC EQUALIZER : 40Hz, 125Hz, 330Hz, 1kHz, 2.5kHz, 6.3kHz, 15kHz)	
8.9			
SW1	87-031-692-01	Push-switch(POWER)	
SW2.3.4	81-731-635-01	Push-switch(MUTING, DSL, REC OUT)	
SW5.6.7.8.9	87-031-771-01	Tact switch(TAPE, TUNER, PHONO, CD, AUX)	
CON2	81-731-621-01	Connector ass'y, 6P	
CON4	81-731-652-01	Connector ass'y, 7P	
CON5	81-731-622-01	Connector ass'y, 8P	
< CAPACITORS >			
C81.82.85.86	87-015-698-01	4.7μF 5.0V Electrolytic	
C83.84	87-015-681-01	1.0μF 1.6V Electrolytic	
< MIC CIRCUIT BOARD SECTION >			
PCB-D	*	MIC circuit board	
IC12	87-027-895-01	IC, M5218L	
VR1	87-021-848-01	Volume, 50kΩ·B(MIC VOL)	
VR2	81-731-636-01	Volume, 100kΩ·RW(BALANCE)	
J17	87-049-353-01	Jack, 6.3μW/switch(MIX MIC)	
CON6	81-731-622-01	Connector ass'y, 8P	
< CAPACITORS >			
C133	87-018-042-01	6.80pF Ceramic	
C135	87-018-044-01	1.00pF Ceramic	
< LED CIRCUIT BOARD SECTION >			
PCB-E	*	LED circuit board	
IC11	87-020-217-01	IC, BA684A	
D70.71.72.73	87-020-219-01	LED, GL-3PG2(LEVEL INDICATOR)	
74.75.76.77			
D78	87-020-218-01	LED, GL-3PR2(RECEIVED)	
SW10.11	87-031-771-01	Tact switch(VOLUME DOWN, VOLUME UP)	
CON7	81-731-620-01	Connector ass'y, 7P	

Symbol No.	Part No.	Description	Remark
< Capacitor >			
C130	87-018-047-01	0.01μF 1.6V Ceramic	
< SWITCH CIRCUIT BOARD SECTION > = "H, HB" models			
△PCB-F	*	Switch circuit board	
△SW12	87-031-551-01	Rotary switch(AC VOLTAGE SELECTOR)	
△J18	87-049-017-01	AC outlet	
△	82-304-743-01	1P terminal	
< FUSE CIRCUIT BOARD SECTION > = "E, EB" models			
△PCB-G	81-731-644-11	Fuse circuit board	
△F1	87-035-139-01	Fuse, "T" 2.5A	
△	87-033-147-01	Fuse clamp	
△J18	87-049-414-01	AC outlet	
△	82-304-743-01	1P terminal	
< COMMAND CIRCUIT BOARD SECTION >			
PCB-H	81-731-655-01	Command circuit board	
IC1	87-027-831-01	TC-9132P	
Q1	89-206-412-01	Transistor, 2SB641(R)	
Q2	89-406-372-01	Transistor, 2SD637(R)	
D1.2	87-027-849-01	LED, LN66 (LED SE303A)	
X1	87-008-246-01	Ceramic resonator, CS-B455EB1	
< KEY SWITCH CIRCUIT BOARD SECTION >			
PCB-I	81-731-656-01	Key switch circuit board	
SW4.5.6.7.	86-198-601-01	Rubber switch [TAPE, PHONO, AUX, CD, REV PLAY(◀), START/CUT, PLAY(▶), PAUSE, STOP, TUNER REC, VOLUME UP(▶), VOLUME DOWN(◀), FM, TUNING DOWN, UP, LW (EB, K, KB models only) ▲▲, ▲▲, ▶▶, MUTING, POWER, AM(MW)]	
11.13.14.			
17.18.19.			
20.21.22.			
23.24.25.			
26.27.28.			
30.31			
< MISCELLANEOUS >			
△T1	81-731-606-01	Power transformer(H, HB models only)	
△T1	81-731-607-01	Power transformer(UB model only)	
△T1	81-731-608-01	Power transformer(E, EB models only)	
△T1	81-731-609-01	Power transformer(K, KB, G models only)	
△	87-034-962-01	AC power cord H50(H, HB models only)	
△	87-034-578-01	AC power cord U black(UB model only)	
△	82-788-674-01	AC power cord E50(E, EB models only)	
△	82-788-673-01	AC power cord K50(K, KB, G models only)	
△J18	87-049-017-01	AC outlet(UB model only)	
△J18	87-032-996-01	AC outlet(K, KB, G models only)	
△	87-085-184-01	Cord bushing(H, HB, UB models only)	
△	87-085-185-01	Cord bushing(E, EB, K, KB, G models only)	
CPI, CON3	81-731-633-01	Photo transistor amp. unit EUR-3619A	

"***" shows unavailable Repair Part.

Description	Remark
P A R D N >	
C89.90 87-015-697-01 3.3μF 50V Electrolytic	
C93.94 87-015-695-01 1μF 50V Electrolytic	
C97.98 87-015-693-01 0.33μF 50V Electrolytic	
C101.102 87-015-691-01 0.1μF 50V Electrolytic	
C103.104 87-018-044-01 1000pF Ceramic	
C107.108 87-018-040-01 470pF Ceramic	
C111.112 87-018-035-01 180pF Ceramic	
< G E Q C I R C U I T B O A R D S E C T I O N >	
PCB-C * GEQ circuit board	
I C13 87-027-895-01 IC, M5218L	
D50.51.52.53. 87-027-097-01 Diode, 1S1555	
54	
D55.56.57.58. 87-027-543-01 LED, LN317GP(TAPE, TUNER, PHONO, CD, AUX)	
59	
D60.61.62 87-020-128-01 LED, GL-2PR2(DSL, REC OUT, MUTING)	
VR3.4.5.6.7. 8.9 87-021-846-01 Slide volume, 250kΩ-W(GRAPHIC EQUALIZER : 40Hz, 125Hz, 330Hz, 1kHz, 2.5kHz, 6.3kHz, 15kHz)	
SW1 87-031-692-01 Push-switch(POWER)	
SW2.3.4 87-731-635-01 Push-switch(MUTING, DSL, REC OUT)	
SW5.6.7.8.9 87-031-771-01 Tact switch(TAPE, TUNER, PHONO, CD, AUX)	
CON2 87-731-621-01 Connector ass'y, 6P	★★★
CON4 87-731-652-01 Connector ass'y, 7P	★★★
CON5 87-731-622-01 Connector ass'y, 8P	★★★
< Capacitors >	
C81.82.85.86 87-015-698-01 4.7μF 50V Electrolytic	
C83.84 87-015-681-01 10μF 16V Electrolytic	
< M I C C I R C U I T B O A R D S E C T I O N >	
PCB-D * MIC circuit board	
I C12 87-027-895-01 IC, M5218L	
V R1 87-021-848-01 Volume, 50kΩ-B(MIC VOL)	
★★★ V R2 87-731-636-01 Volume, 100kΩ-RW(BALANCE)	
★★★ J 17 87-049-353-01 Jack, 6.3mmW/switch(MIX MIC)	
★★★ C O N 6 87-731-622-01 Connector ass'y, 8P	
< Capacitors >	
C133 87-018-042-01 680pF Ceramic	
C135 87-018-044-01 1000pF Ceramic	
< L E D C I R C U I T B O A R D S E C T I O N >	
PCB-E * LED circuit board	
I C11 87-020-217-01 IC, BA684A	
D70.71.72.73 87-020-219-01 LED, GL-3PG2(LEVEL INDICATOR)	
74.75.76.77	
D78 87-020-218-01 LED, GL-3PR2(RECEIVED)	
SW10.11 87-031-771-01 Tact switch(VOLUME DOWN, VOLUME UP)	
CON7 87-731-620-01 Connector ass'y, 7P	★★★

Symbol No.	Part No.	Description	Remark
C130	87-018-047-01	< Capacitor > 0.01μF 16V Ceramic	
< S W I T C H C I R C U I T B O A R D S E C T I O N > = "H, HB" models			
△ P C B - F	*	Switch circuit board	
△ S W 1 2	87-031-551-01	Rotary switch(AC VOLTAGE SELECTOR)	
△ J 1 8	87-049-017-01	AC outlet	
△	82-304-743-01	1P terminal	★★★
< F U S E C I R C U I T B O A R D S E C T I O N > = "E, EB" models			
△ P C B - G	81-731-644-11	Fuse circuit board	
△ F 1	87-035-139-01	Fuse, "T" 2.5A	
△	87-033-147-01	Fuse clamp	
△ J 1 8	87-049-414-01	AC outlet	
△	82-304-743-01	1P terminal	★★★
< C O M M A N D C I R C U I T B O A R D S E C T I O N >			
P C B - H	81-731-655-01	Command circuit board	
I C 1	87-027-831-01	TC-9132P	
Q 1	89-206-412-01	Transistor, 2SB641(R)	
Q 2	89-406-372-01	Transistor, 2SD637(R)	
D 1.2	87-027-849-01	LED, LN66 (LED SE303A)	
X 1	87-008-246-01	Ceramic resonator, CS-B455EB1	
< K E Y S W I T C H C I R C U I T B O A R D S E C T I O N >			
P C B - I	81-731-656-01	Key switch circuit board	
S W 4.5.6.7.	86-198-601-01	Rubber switch [TAPE, PHONO, AUX, CD, REV PLAY(◀), START/CUT, PLAY(▶), PAUSE, STOP, TUNER REC, VOLUME UP(▶), VOLUME DOWN(◀), FM, TUNING DOWN, UP, LW (EB, K, KB models only) ▲▲, ▼▼, MUTING, POWER, AM(MW)]	
< M I S C E L L A N E O U S >			
△ T 1	81-731-606-01	Power transformer(H, HB models only)	
△ T 1	81-731-607-01	Power transformer(UB model only)	
△ T 1	81-731-608-01	Power transformer(E, EB models only)	
△ T 1	81-731-609-01	Power transformer(K, KB, G models only)	
△	87-034-962-01	AC power cord H50(H, HB models only)	
△	87-034-578-01	AC power cord U black(UB model only)	
△	82-788-674-01	AC power cord E50(E, EB models only)	
△	82-788-673-01	AC power cord K50(K, KB, G models only)	
△ J 1 8	87-049-017-01	AC outlet(UB model only)	
△ J 1 8	87-032-996-01	AC outlet(K, KB, G models only)	
△	87-085-184-01	Cord bushing(H, HB, UB models only)	
△	87-085-185-01	Cord bushing(E, EB, K, KB, G models only)	
C P 1, CON 3	81-731-633-01	Photo transistor amp. unit EUR-3619A	

Note: Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board A 81-731-640-11

PCB-A 81-731-641-11

PCB-E 81-731-642-11

PCB-F 81-731-643-11

Combination circuit board B 81-731-647-11

PCB-B 81-731-649-11

PCB-C 81-731-648-11

PCB-D 81-731-650-11

ELECTRICAL MAIN PARTS LIST

"***" shows unavailable Repair Part.

Symbol No.	Part No.	Description	Remark
< MAIN CIRCUIT BOARD SECTION >			
PCB-A	*	Main circuit board	
I C1.2	87-020-162-01	I.C. STK1070	
I C5	87-027-787-01	I.C. μPC1237H	
Q11.12	89-318-154-01	Transistor. 2SC1815(Y)	
Q13	89-334-210-01	Transistor. 2SC3421	
Q14	89-113-580-01	Transistor. 2SA1358	
Q15	89-110-154-01	Transistor. 2SA1015(Y)	
D2.6	87-027-469-01	Zener diode. HZ16-2	
D9.10	87-027-097-01	Diode. 1S1555	
D15.16.17.18	87-027-402-01	Zener diode. HZ24-2L	
D19.20.21.22	87-027-626-01	Diode. S5277D	
D25.28	87-027-365-01	Diode. S5277B	
D23	87-027-788-01	Diode. D5FB20	
D24	87-027-376-01	Diode. 1B4B41	
L1.2	87-005-158-01	Inductor coil. 1μH	
RY-1	87-045-223-01	Relay G4W. 24V-2	
RY-2	87-045-224-01	Relay G2R. 24V-2	
J1	81-730-623-01	Jack Ass'y (INPUT, SPEAKER)	
SW1	87-031-822-01	Push-switch (INDICATOR)	
SW3.4	87-031-805-01	Push-switch (SPEAKER A, B)	
PIN1	87-032-897-01	Pin. 3P	★★★
PIN2	82-481-649-01	Pin. 2P	★★★
CON3	87-049-362-01	Connector ass'y. 7P	★★★
< Resistors >			
R57.58	87-025-120-01	1.0Ω 1W Metal film	
R59.60	87-025-193-01	1.0Ω 2W Metal film	
△R123	87-029-361-01	3.3Ω 1/2W Fuse resistor	
< Capacitors >			
C53.54	87-015-914-01	4.7μF 100V Electrolytic	
C55.56	87-015-916-01	2.2μF 100V Electrolytic	
C57.58	87-015-945-01	15.000μF 5.6V Electrolytic	
C60	87-015-450-01	2.20μF 2.5V Electrolytic BP	
C61	89-652-615-01	1.000μF Ceramic	
< INDICATOR CIRCUIT BOARD SECTION >			
PCB-B	*	Indicator circuit board	
I C3.4	87-020-161-01	I.C. AN6891	
Q16.17	89-318-154-01	Transistor. 2SC1815(Y)	
Q18	89-206-051-21	Transistor. 2SB605K(L)	
Q19	89-405-711-21	Transistor. 2SD571K(L)	
D11.12.13.14.27	87-027-097-01	Diode. 1S1555	
D26	87-027-499-01	Zener diode. HZ15-3	
D31.32.33.34.35.36.37.38.39.40.41.42	87-020-164-01	LED. Red. GL-106-R5	
D43.44.45.46.47.48.49.50.51.52	87-020-165-01	LED. Red. GL-105-R5	
D53.54	87-020-163-01	LED. Green. GL-9NG23	
D55	87-020-128-01	LED. Red. GL-2PR2	
△SW2	87-031-692-01	Push-switch (POWER)	
PIN3	87-049-361-01	Pin. 7P	★★★
< Capacitors >			
C35.36.37.38.39.40	87-015-698-01	4.7μF 50V Electrolytic	

Symbol No.	Part No.	Description	Remark
< DRIVER-1 CIRCUIT BOARD SECTION >			
PCB-C	*	Driver-1 circuit board	
Q1	89-503-890-01	FET. 2SK389	
Q3	89-318-154-01	Transistor. 2SC1815(Y)	
Q5	89-333-810-01	Transistor. 2SC3381	
Q7	89-111-246-01	Transistor. 2SA1124R	
Q9	89-326-326-01	Transistor. 2SC2632(R)	
D1.5	87-027-469-01	Zener diode. HZ16-2	
D3.7	87-027-097-01	Diode. 1S1555	
SFR1	87-021-856-01	Semi-fixed resistor. 100Ω-B	
PIN4.5.6	87-049-113-01	Pin. 3P	★★★
< Capacitor >			
C1	87-015-141-01	10μF 16V Electrolytic BP	
< DRIVER-2 CIRCUIT BOARD SECTION >			
PCB-D	*	Driver-2 circuit board	
Q2	89-503-890-01	FET. 2SK389	
Q4	89-318-154-01	Transistor. 2SC1815Y	
Q6	89-333-810-01	Transistor. 2SC3381	
Q8	89-111-246-01	Transistor. 2SA1124R	
Q10	89-326-326-01	Transistor. 2SC2632R	
D2.6	87-027-469-01	Zener diode. HZ16-2	
D4.8	87-027-097-01	Diode. 1S1555	
SFR2	87-021-856-01	Semi-fixed resistor. 100Ω-B	
PIN7.8.9	87-049-113-01	Pin. 3P	★★★
< Capacitor >			
C2	87-015-141-01	10μF 16V Electrolytic BP	
< JACK CIRCUIT BOARD SECTION >			
PCB-E	*	Jack circuit board	
J2	87-049-360-01	Jack. 6.3φ(PHONES)	
< Resistor >			
R75.76	87-025-055-01	2.70Ω 2W Metal film	
< FUSE-1 CIRCUIT BOARD SECTION > - "UB" MODELS			
PCB-F	*	Fuse-1 circuit board	
△F1	87-035-313-01	Fuse. 5A	
	87-098-324-01	Fuse label	
△	87-033-147-01	Fuse clamp	
△	82-304-743-01	IP terminal	★★★
< SWI.TCH CIRCUIT BOARD SECTION > = "H, HB" MODELS			
△PCB-G	*	Switch circuit board	
△F1	87-035-312-01	Fuse. 7A	
	87-098-074-01	Fuse label. 7A	
△F2	87-035-256-01	Fuse. 3.15A	
△SW5	87-098-045-01	Fuse label. 3.15A	★★★
	87-031-586-01	Rotary switch (VOLTAGE SELECTOR)	
△	87-033-147-01	Fuse clamp	
△	82-304-743-01	IP terminal	★★★

Symbol No.	Part No.	Description	Remark
< FUSE-2 CIRCUIT BOARD SECTION > = "E, EB, K, KB, G" MODELS			
△PCB-H	*	Fuse-2 circuit board	
△F1	87-035-190-01	Fuse. "T" 2A	
	87-098-019-01	Fuse label. "T" 2A	
△	87-033-147-01	Fuse clamp	
△	82-304-743-01	IP terminal	★★★
< MISCELLANEOUS >			
△TI	81-730-606-01	Power transformer (H, HB, models only)	
△TI	81-730-607-01	Power transformer (UB model only)	
△TI	81-730-608-01	Power transformer (E, EB models only)	
△TI	81-730-609-01	Power transformer (K, KB, G models only)	
△	87-034-962-01	AC power cord (H model only)	
△	87-034-992-01	AC power cord (HB model only)	
△	87-034-578-01	AC power cord (UB model only)	
△	82-788-674-01	AC power cord (E, EB models only)	
△	87-034-708-01	AC power cord (K, KB, G models only)	
△	87-085-184-01	Cord bushing (H, HB, UB models only)	
△	87-085-185-01	Cord bushing (E, EB, K, KB, G models only)	
	82-798-601-01	Heatsink (H, HB, UB models only)	
	81-730-624-01	Heatsink. EL (E, EB, K, KB, G models only)	
	81-730-625-01	Heatsink. ER (E, EB, K, KB, G models only)	



This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

Note: Combination
The parts or asterisk (*)
Therefore, the necessary, ple

Combination
PCB-A 81
PCB-B 81
PCB-C 81
PCB-D 81
PCB-E 81
PCB-F 81
PCB-G 81
PCB-H 81

shows unavailable Repair Part.

Symbol No.	Part No.	Description			Remark
< D R I V E R - 1 C I R C U I T B O A R D S E C T I O N >					
PCB-C	*	Driver-1 circuit board			
Q1	89-503-890-01	FET. 2SK389			
Q3	89-318-154-01	Transistor. 2SC1815(Y)			
Q5	89-333-810-01	Transistor. 2SC3381			
Q7	89-111-246-01	Transistor. 2SA1124R			
Q9	89-326-326-01	Transistor. 2SC2632(R)			
D1.5	87-027-469-01	Zener diode. HZ16-2			
D3.7	87-027-097-01	Diode. 1S1555			
SFR1	87-021-856-01	Semi-fixed resistor. 100Ω-B			
PIN4.5.6	87-049-113-01	Pin. 3P			★★★
< C a p a c i t o r >					
C1	87-015-141-01	10μF	16V	Electrolytic BP	
< D R I V E R - 2 C I R C U I T B O A R D S E C T I O N >					
PCB-D	*	Driver-2 circuit board			
Q2	89-503-890-01	FET. 2SK389			
Q4	89-318-154-01	Transistor. 2SC1815Y			
Q6	89-333-810-01	Transistor. 2SC3381			
Q8	89-111-246-01	Transistor. 2SA1124R			
Q10	89-326-326-01	Transistor. 2SC2632R			
D2.6	87-027-469-01	Zener diode. HZ16-2			
D4.8	87-027-097-01	Diode. 1S1555			
SFR2	87-021-856-01	Semi-fixed resistor. 100Ω-B			
PIN7.8.9	87-049-113-01	Pin. 3P			★★★
< C a p a c i t o r >					
C2	87-015-141-01	10μF	16V	Electrolytic BP	
< J A C K C I R C U I T B O A R D S E C T I O N >					
PCB-E	*	Jack circuit board			
J2	87-049-360-01	Jack. 6.3φ(PHONES)			
< R e s i s t o r >					
R75.76	87-025-055-01	270Ω	2W	Metal film	
< F U S E - 1 C I R C U I T B O A R D S E C T I O N > -- "U B" M O D E L					
PCB-F	*	Fuse-1 circuit board			
△FI	87-035-313-01	Fuse. 5A			
△	87-098-324-01	Fuse label			★★★
△	87-033-147-01	Fuse clamp			★★★
△	82-304-743-01	1P terminal			★★★
< S W I T C H C I R C U I T B O A R D S E C T I O N > = "H, HB" M O D E L S					
△PCB-G	*	Switch circuit board			
△FI	87-035-312-01	Fuse. 7A			
△	87-098-074-01	Fuse label. 7A			
△F2	87-035-256-01	Fuse. 3.15A			★★★
△	87-098-045-01	Fuse label. 3.15A			
△SW5	87-031-586-01	Rotary switch (VOLTAGE SELECTOR)			
△	87-033-147-01	Fuse clamp			★★★
△	82-304-743-01	1P terminal			★★★

Symbol No.	Part No.	Description	Remark
< F U S E - 2 C I R C U I T B O A R D S E C T I O N > = " E , E B , K , K B , G " M O D E L S			
△PCB-H	*	Fuse- 2 circuit board	
△FI	87-035-190-01	Fuse. "T" 2A	
△	87-098-019-01	Fuse label. "T" 2A	
△	87-033-147-01	Fuse clamp	
△	82-304-743-01	IP terminal	★ ★ ★
< M I S C E L L A N E O U S >			
△T1	81-730-606-01	Power transformer (H, HB, models only)	
△T1	81-730-607-01	Power transformer (UB model only)	
△T1	81-730-608-01	Power transformer (E, EB models only)	
△T1	81-730-609-01	Power transformer (K, KB, G models only)	
△	87-034-962-01	AC power cord (H model only)	
△	87-034-992-01	AC power cord (HB model only)	
△	87-034-578-01	AC power cord (UB model only)	
△	82-788-674-01	AC power cord (E, EB models only)	
△	87-034-708-01	AC power cord (K, KB, G models only)	
△	87-085-184-01	Cord bushing (H, HB, UB models only)	
△	87-085-185-01	Cord bushing (E, EB, K, KB, G models only)	
	82-798-601-01	Heatsink (H, HB, UB models only)	
	81-730-624-01	Heatsink, EL (E, EB, K, KB, G models only)	
	81-730-625-01	Heatsink, ER (E, EB, K, KB, G models only)	

△ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (④).

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 81-730-610-11

PCB-A 81-730-611-11

PCB-B 81-730-612-01

PCB-C 81-730-616-01

PCB-D 81-730-617-01

PCB-E 81-730-613-01

PCB-F 81-730-614-01

PCB-F 81-733-614-01 (SB models only)

PCB-G 81-730-615-01 (H,HB models only)

PCB-# 81-750-018-01 (E,EB,R,KB,G models only)

 Safety component symbol

 Safety component symbol.
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

C-MOS IC handling precaution

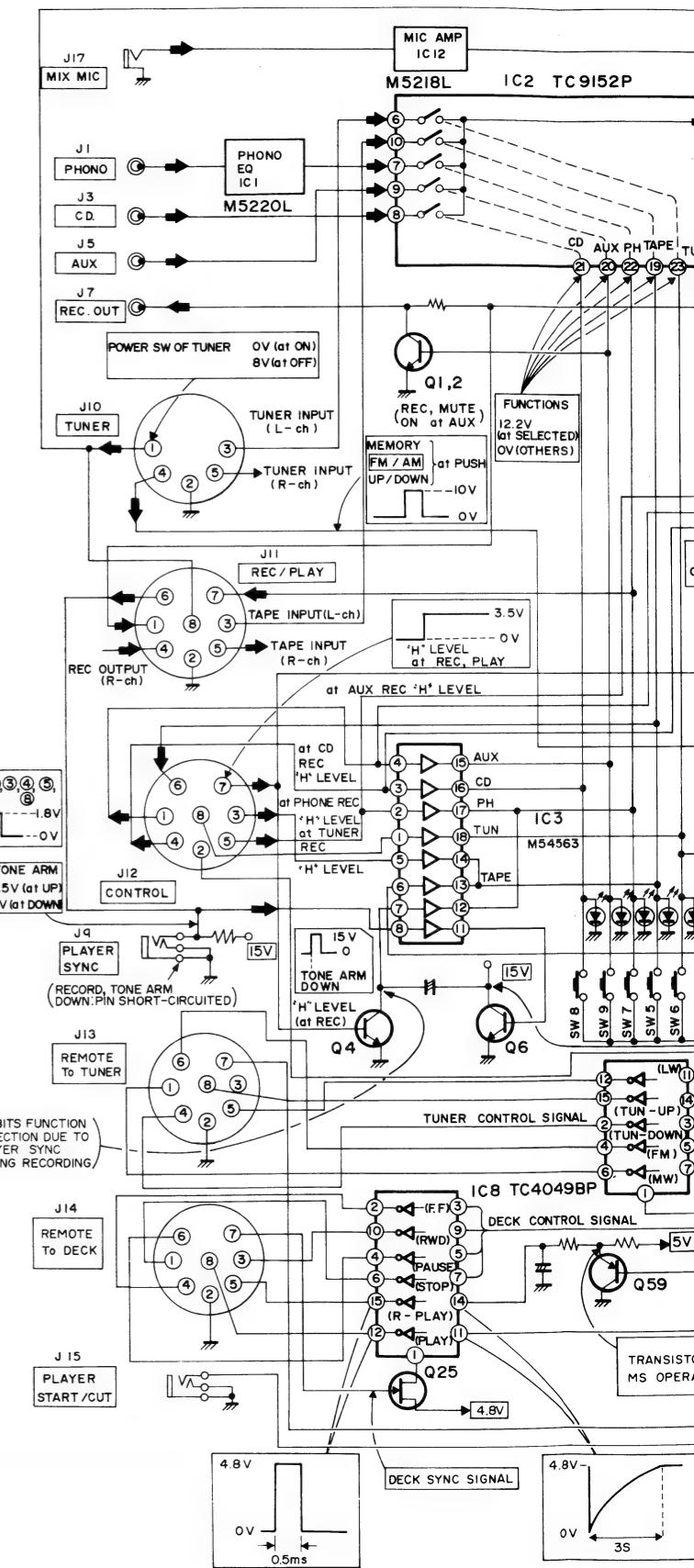
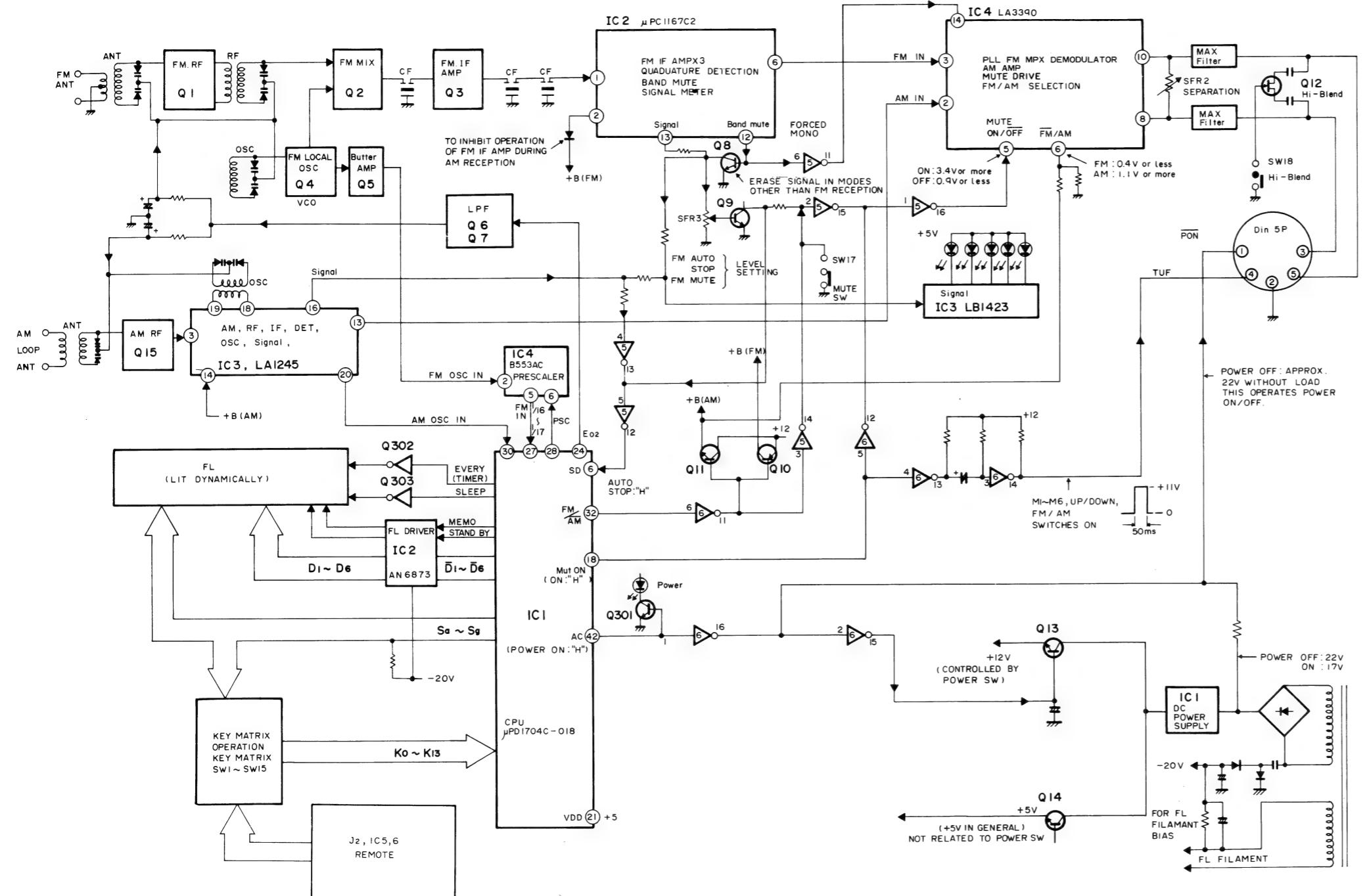
The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

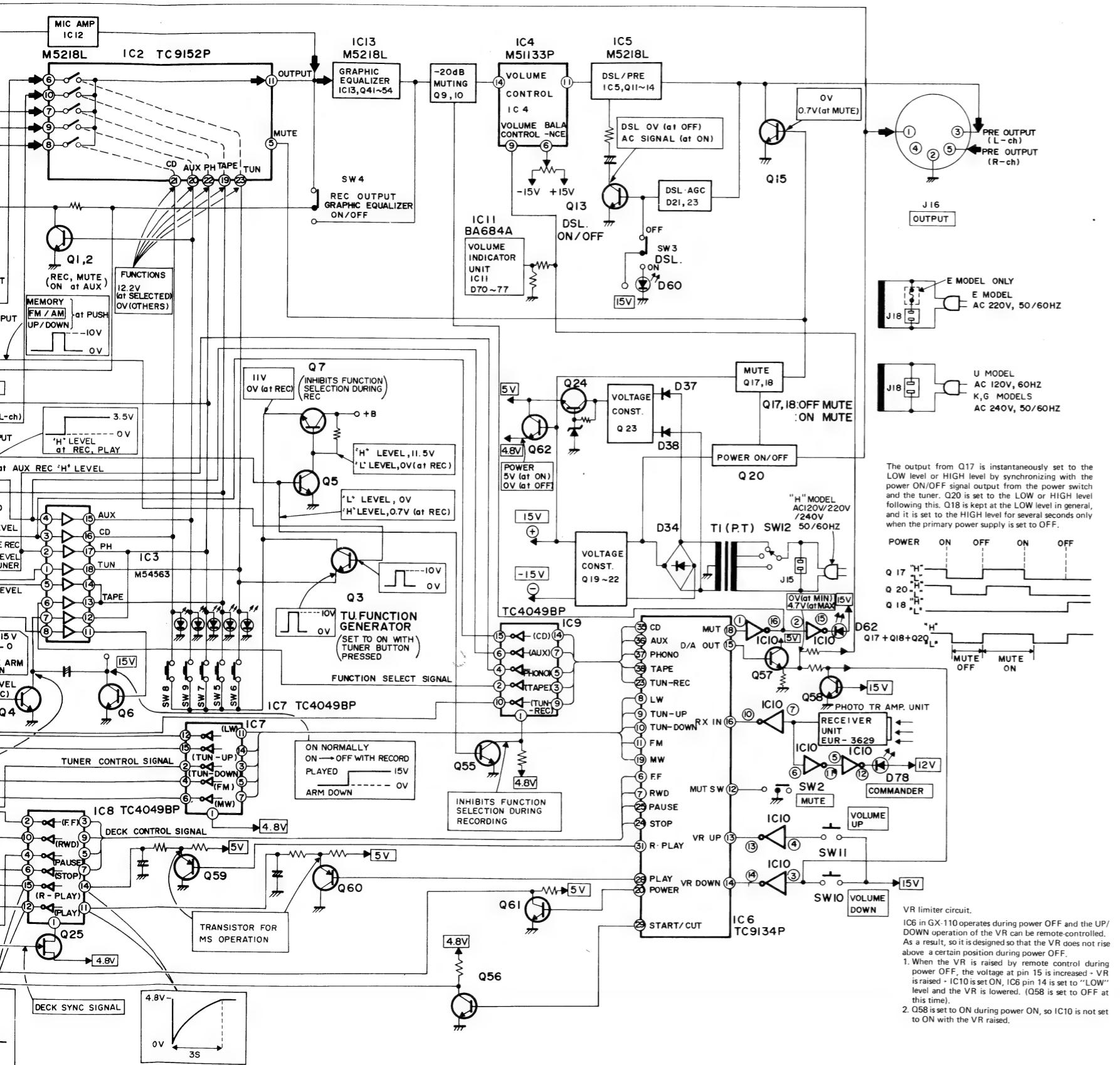
BLOCK DIAGRAM

•TX-110

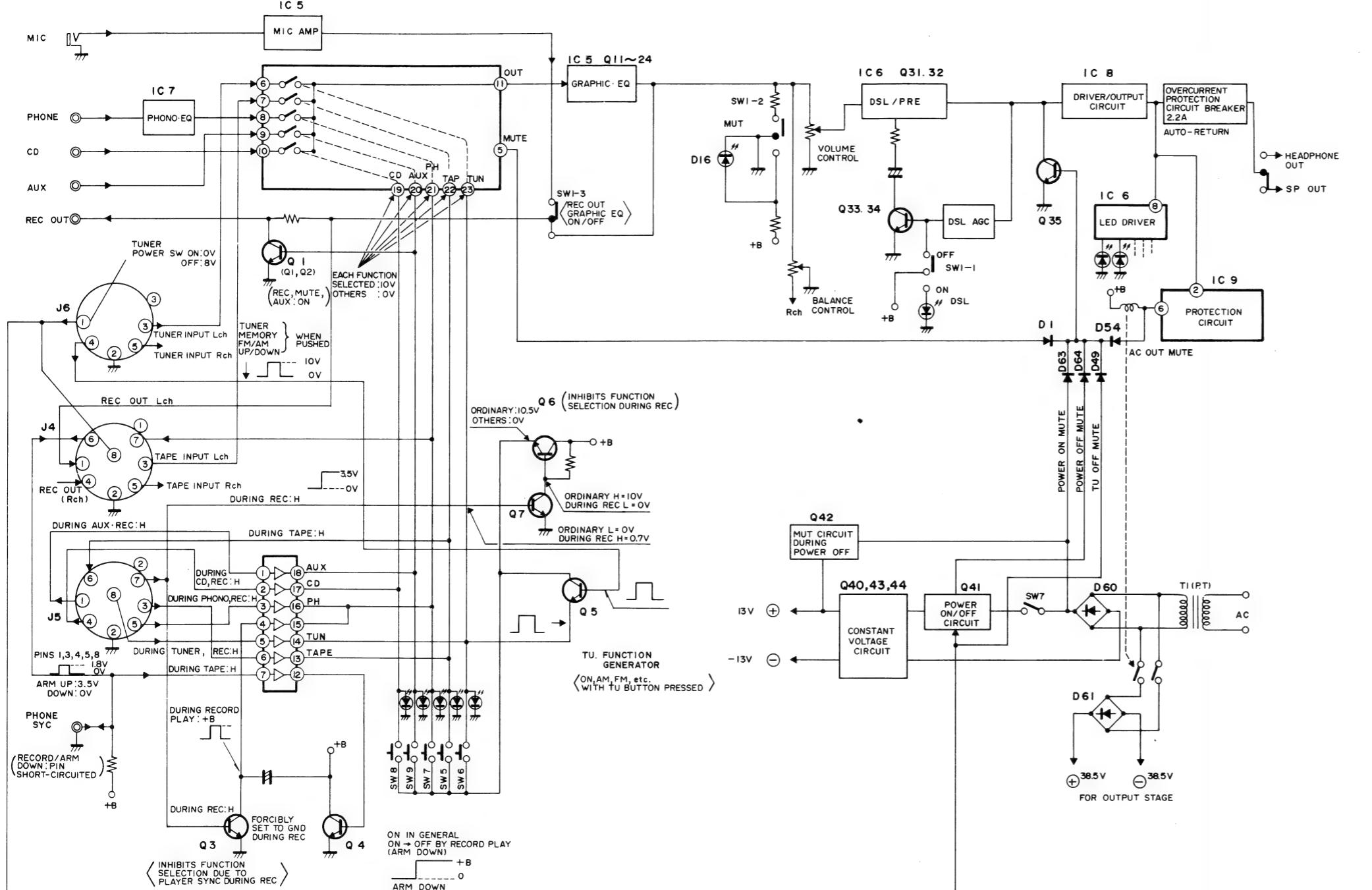
•GX-110



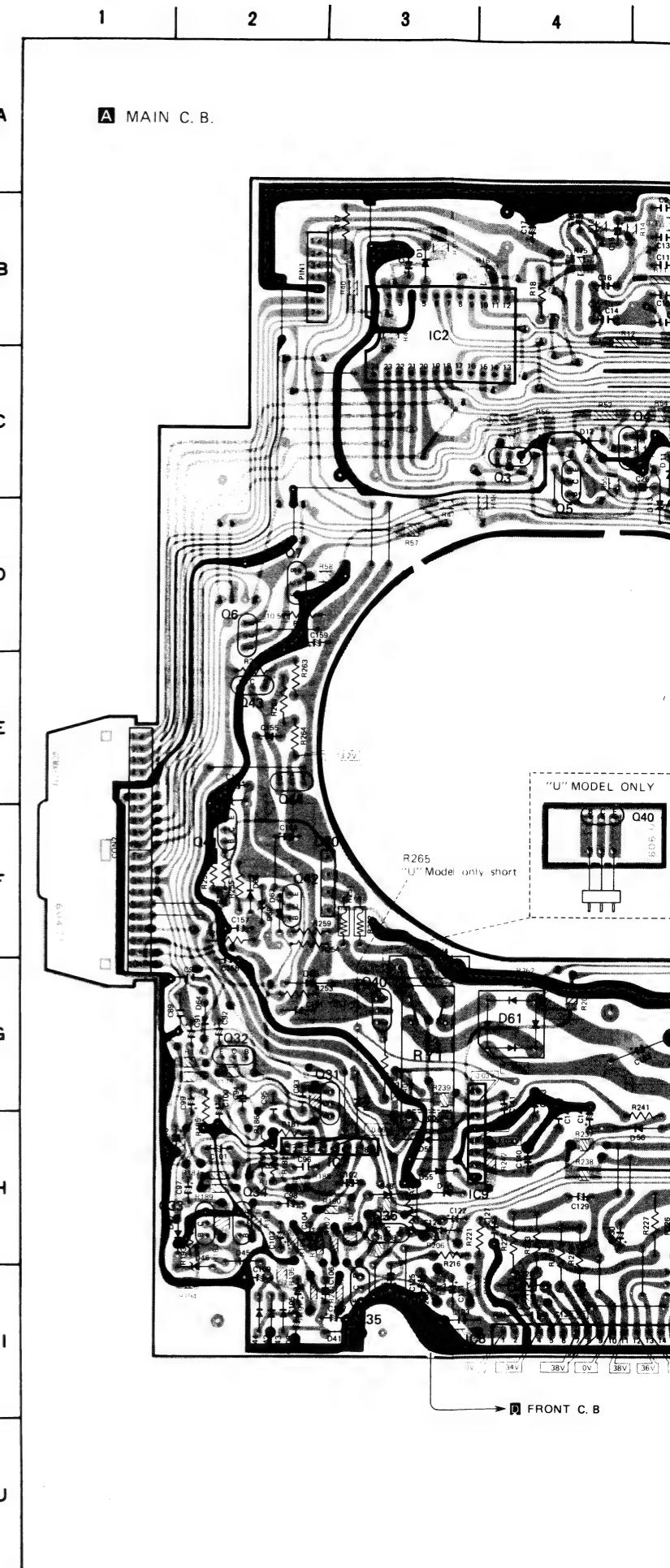
•BX-110



•MX-90



RING (MX-90)

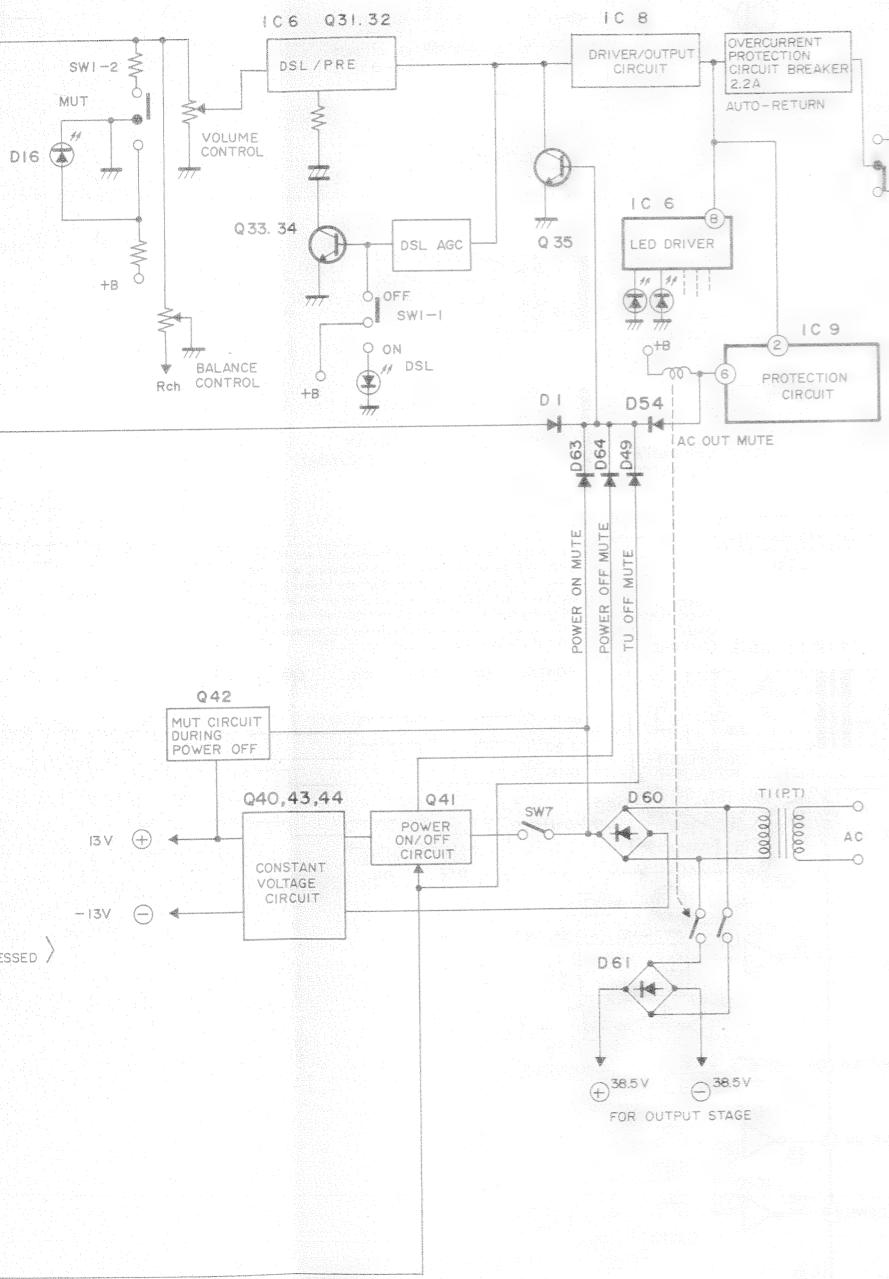


NOTES (1) Earth pattern Component side pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
But () is with AM reception.

WIRING (MX-90)

1 2 3 4 5 6 7 8 9 10



A MAIN C. B.

A

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C

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E

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NOTES (1)
(2)

Earth pattern Component side pattern Others pattern

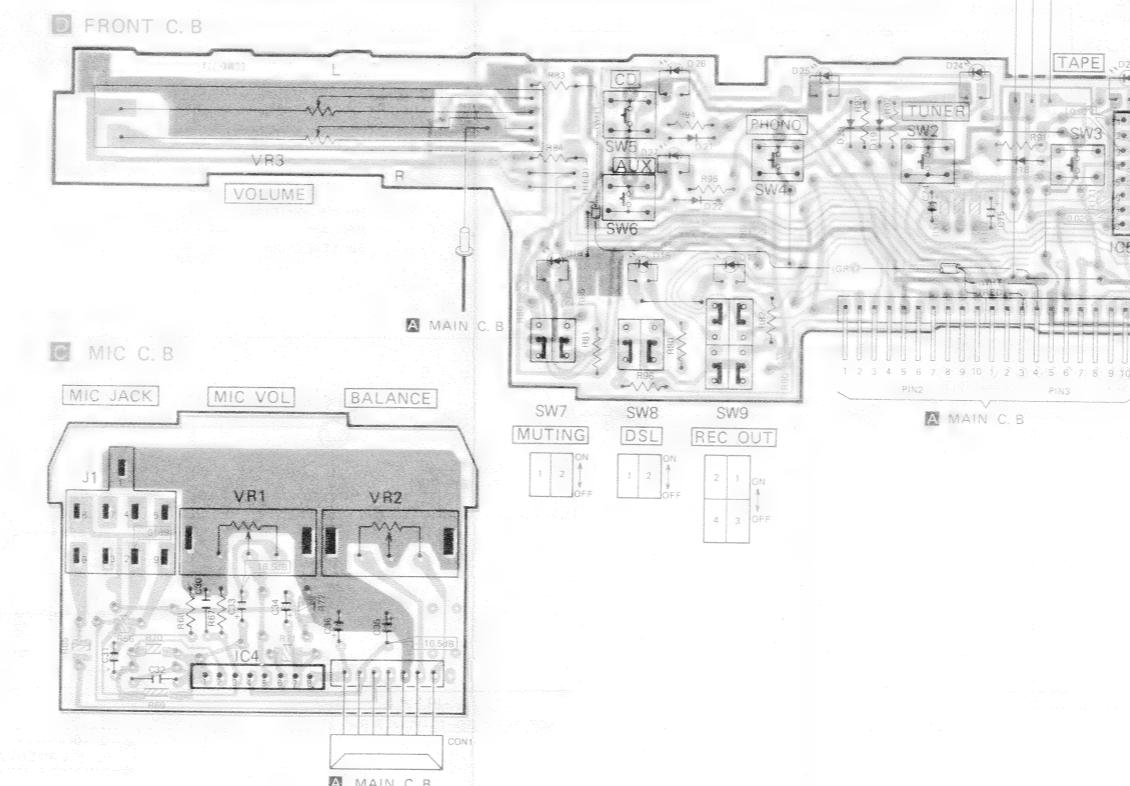
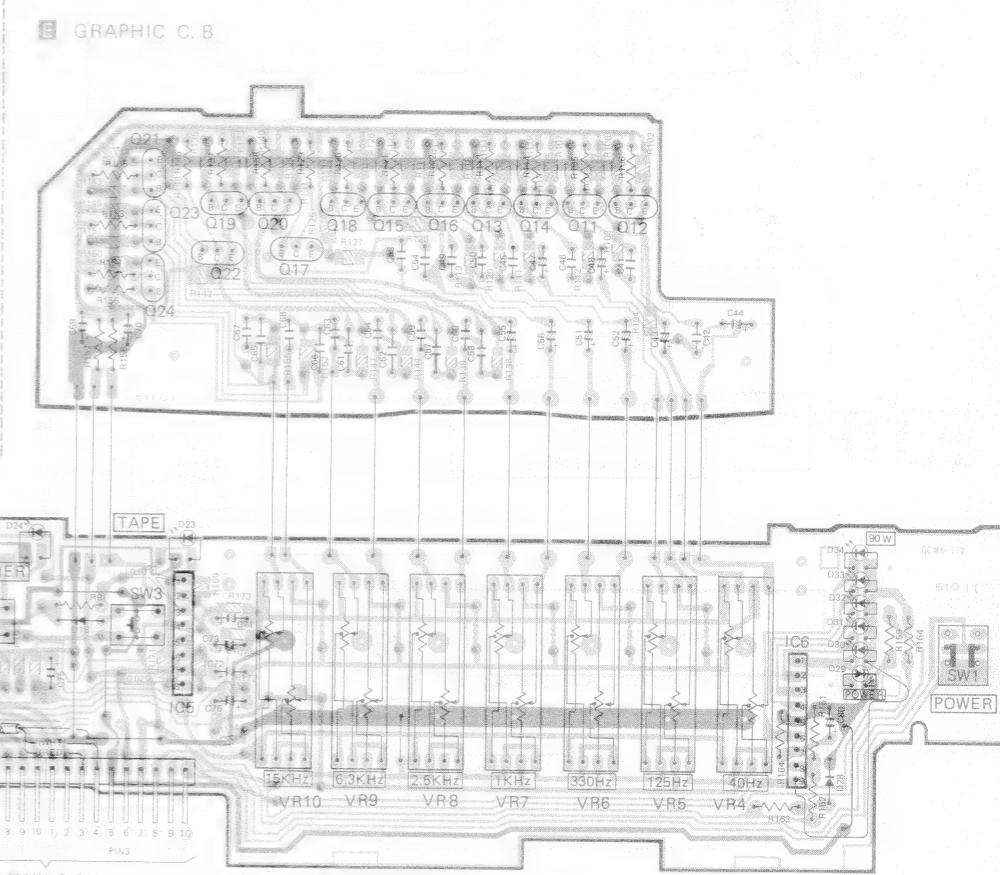
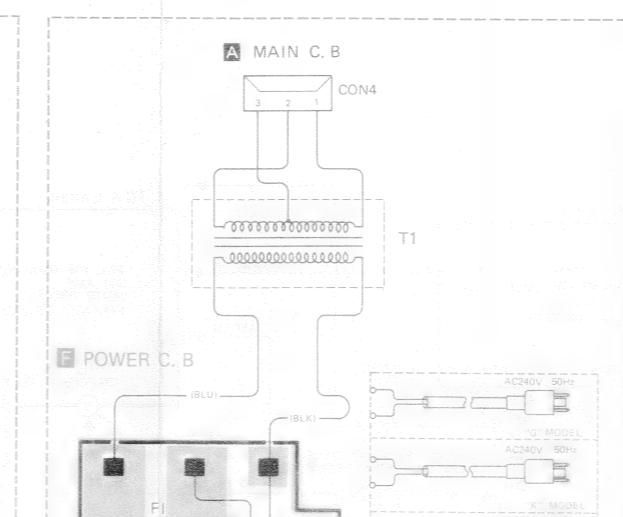
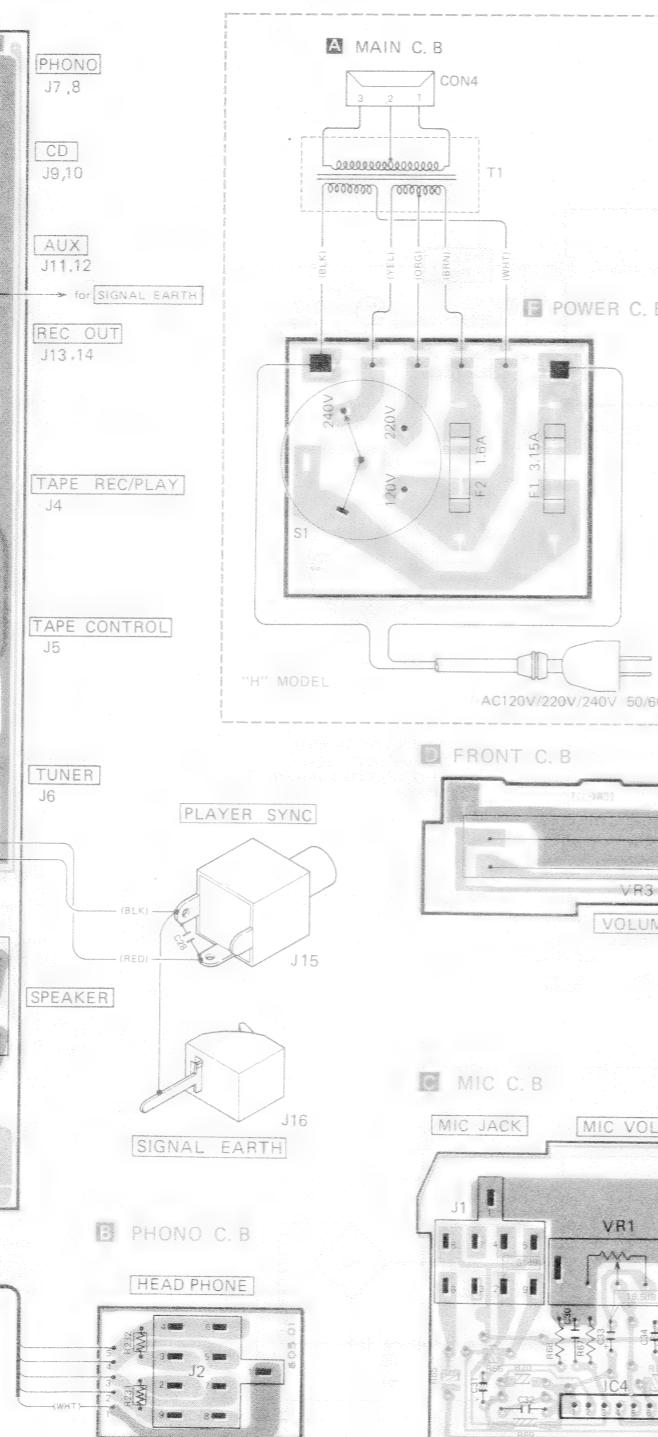
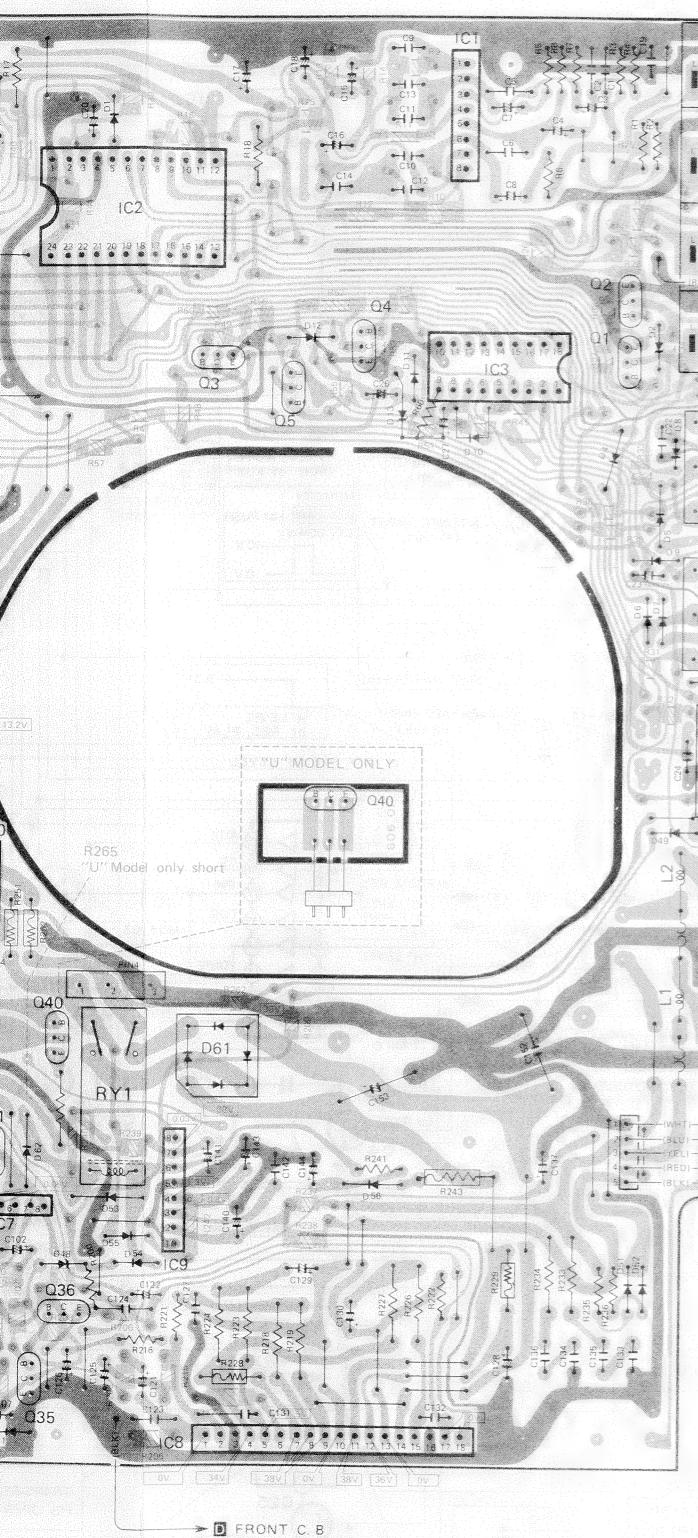
The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
But () is with AM reception.

MX-90 H,HB,UB,E
EB,K,KB,G

MX-90 H,HB,UB,E
EB,K,KB,G

AIWA®

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



NOTES (1) ■ Earth pattern ■ Component side pattern ■ Others pattern

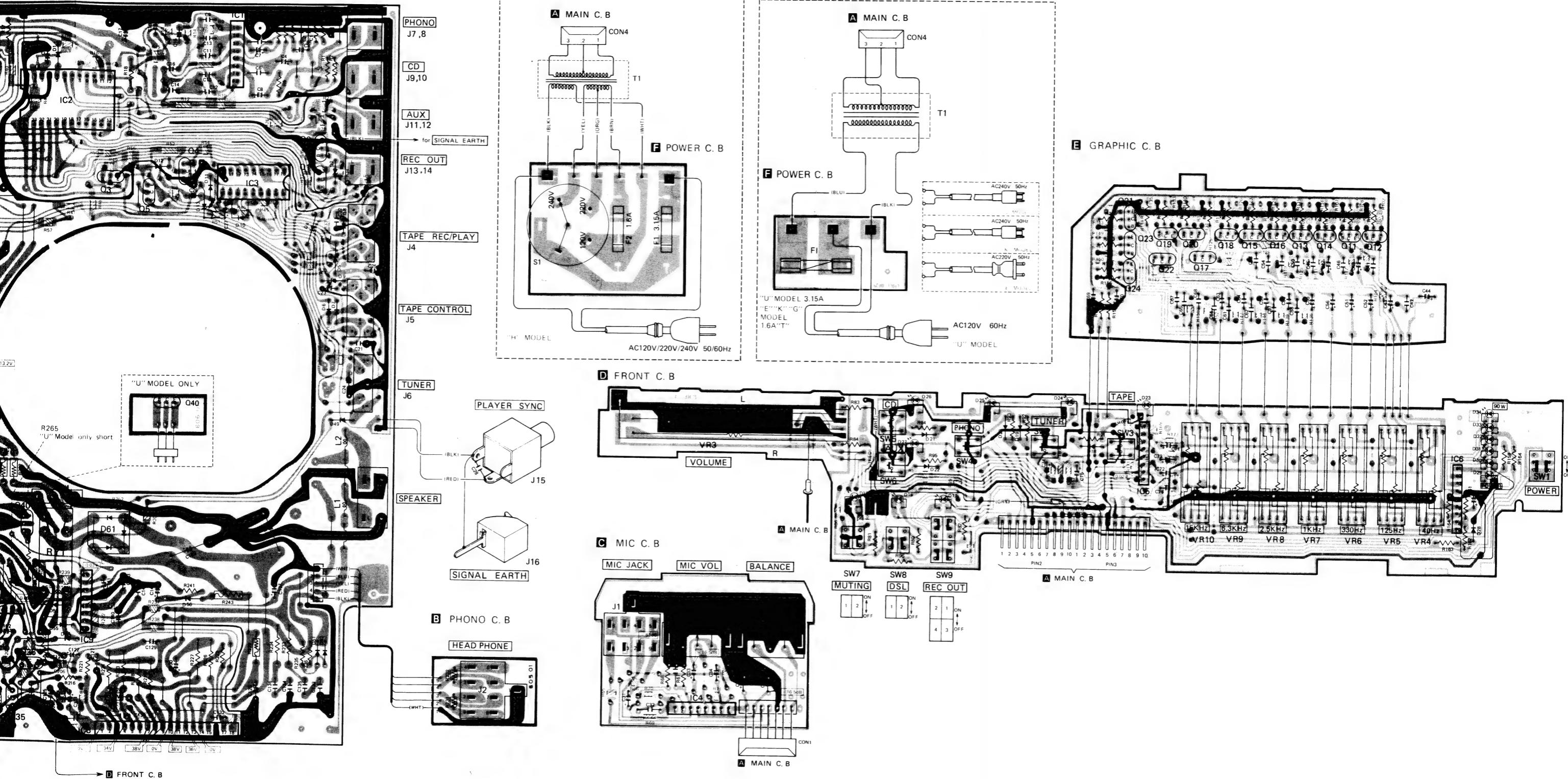
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. But () is with AM reception.

**MX-90 H,HB,UB
EB,K,KB**

MX-90 H,HB,U
EB,K,KI

AIWA®

3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18

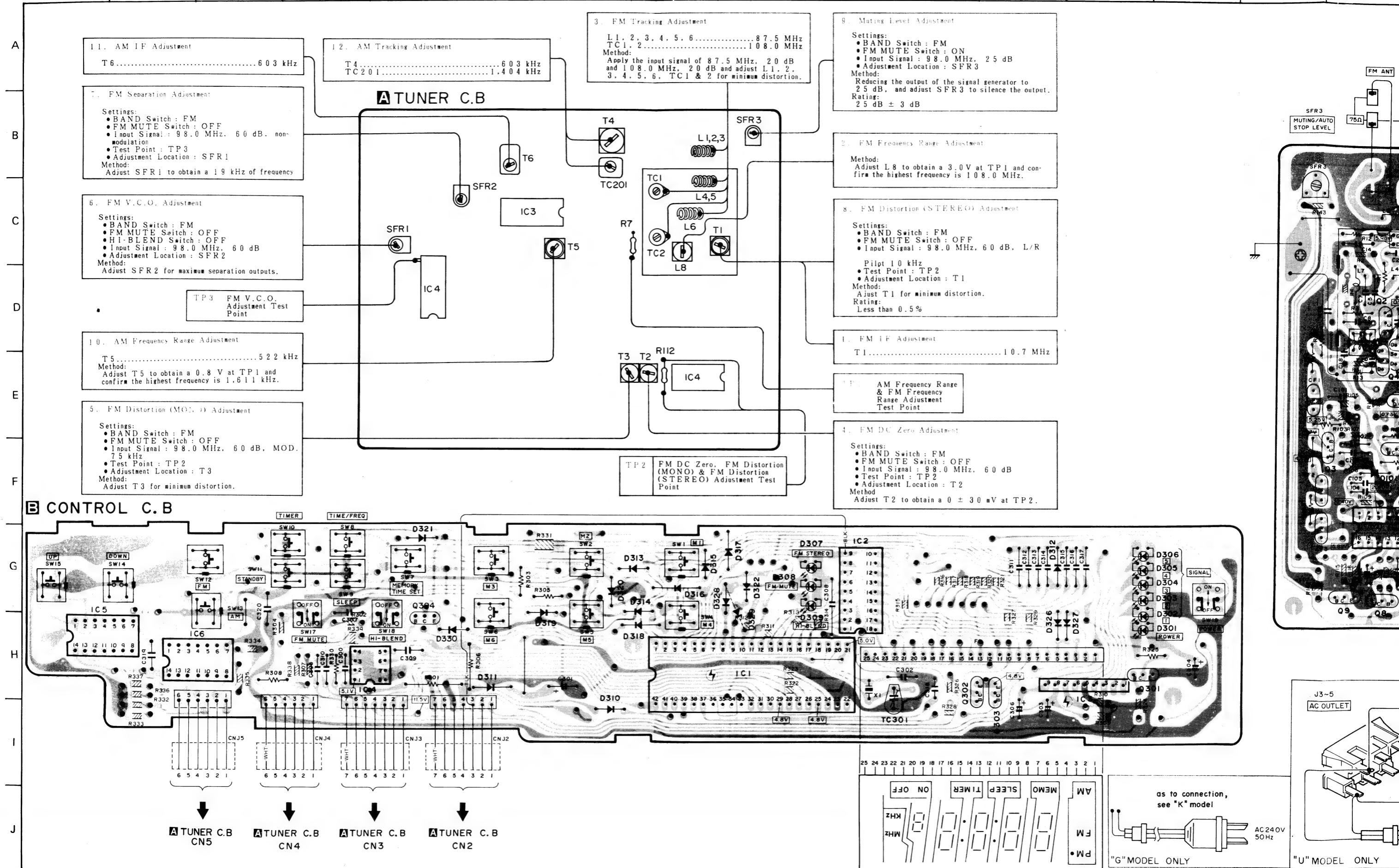


NOTES (1) Earth pattern Printed resistor pattern Component side pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
 But () is with AM reception.

The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

WIRING (TX-110 H, U, G)

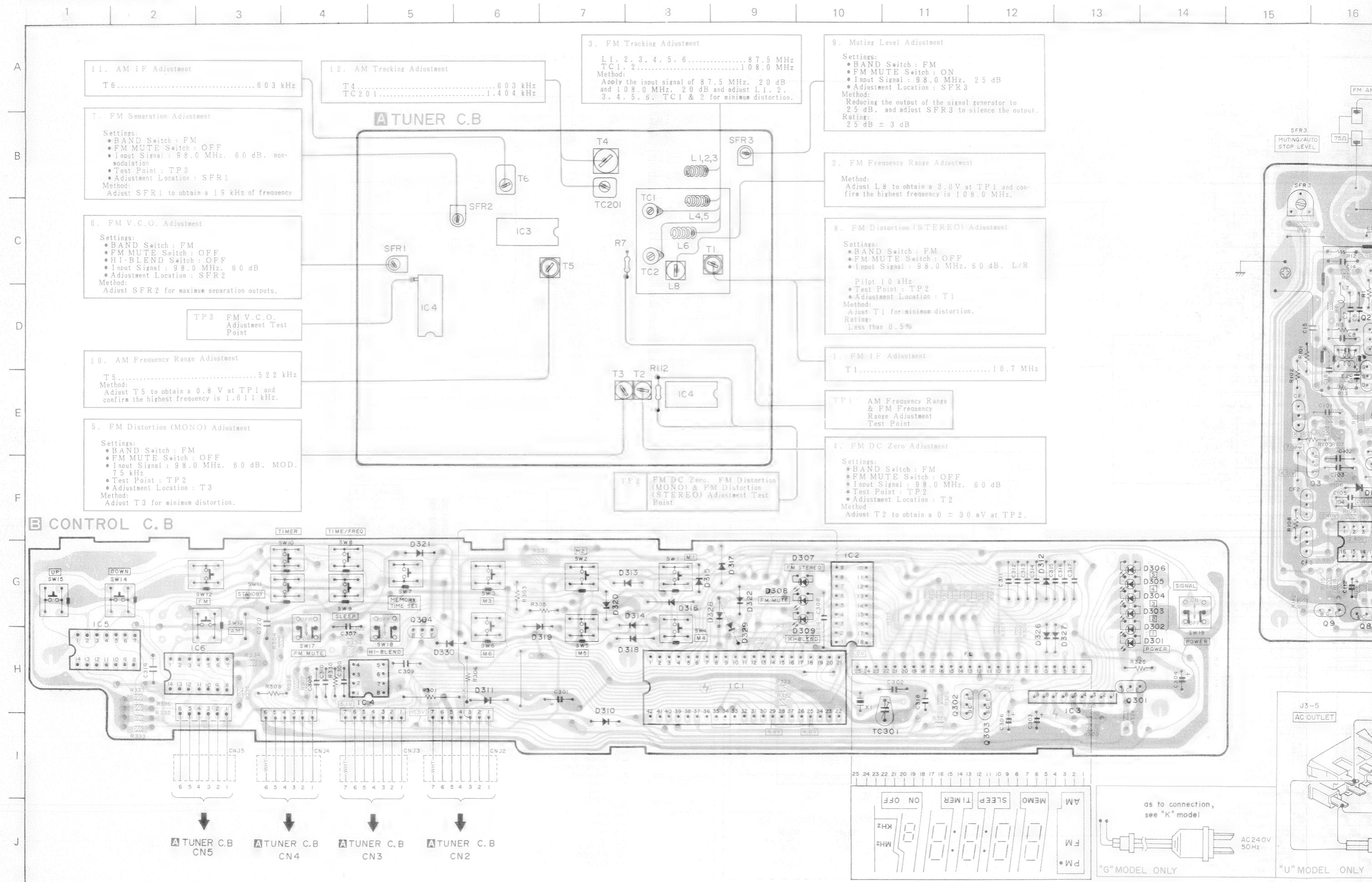
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16



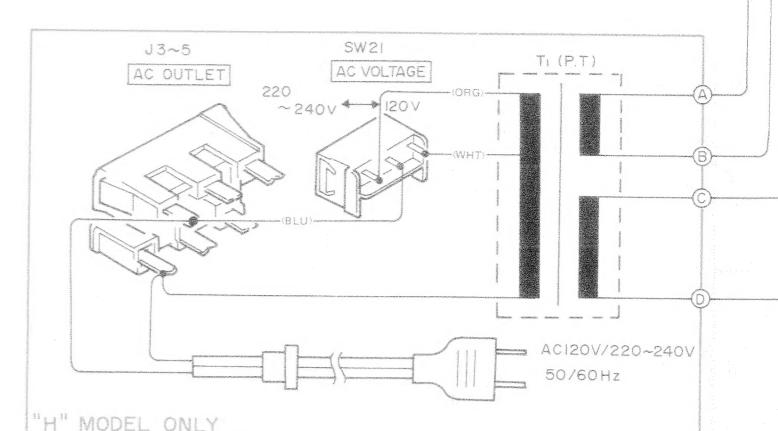
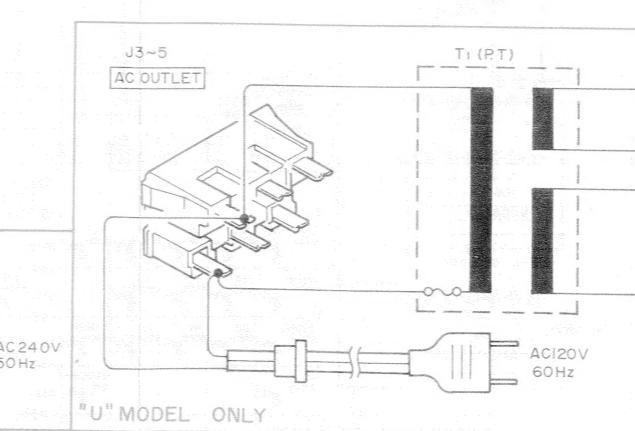
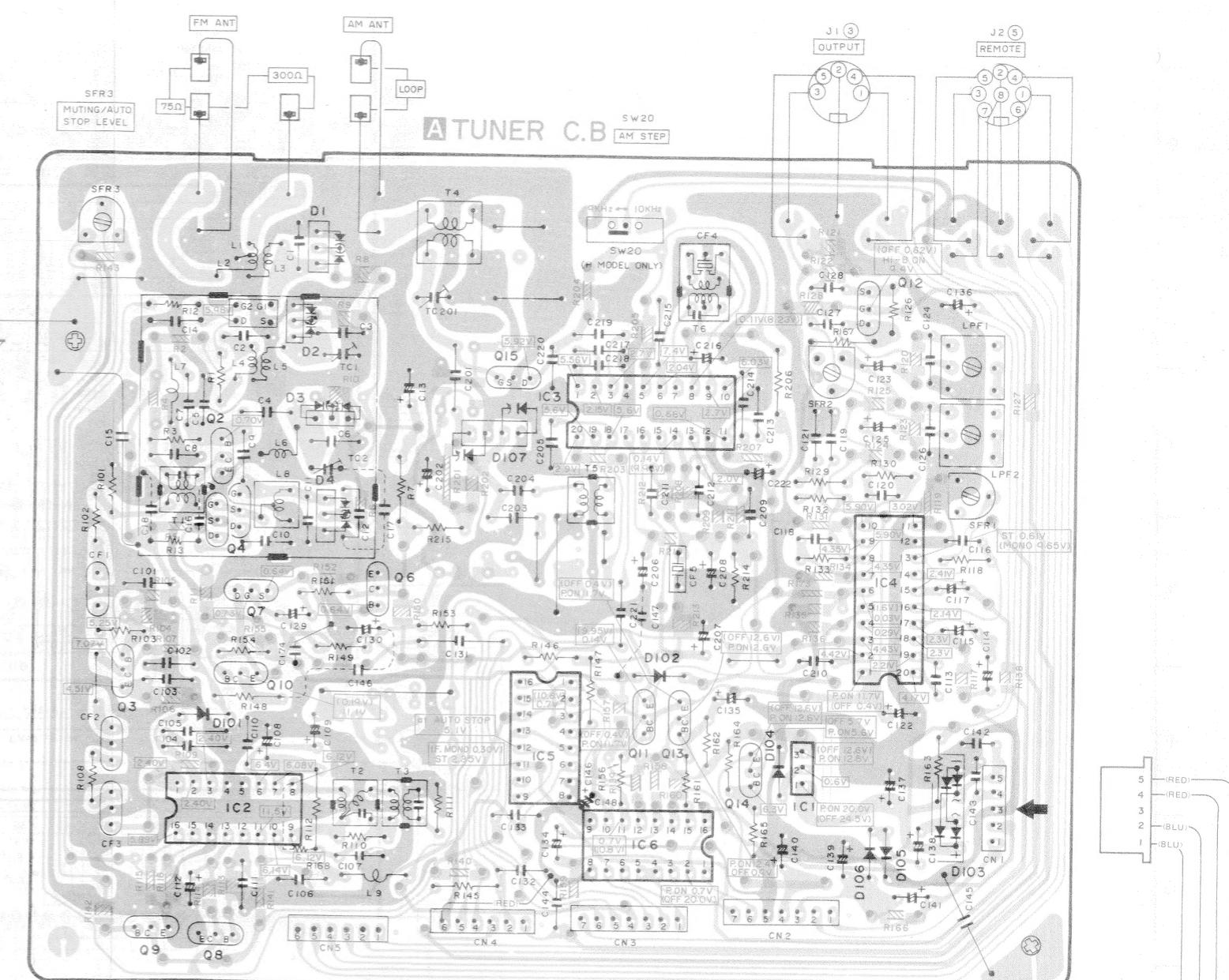
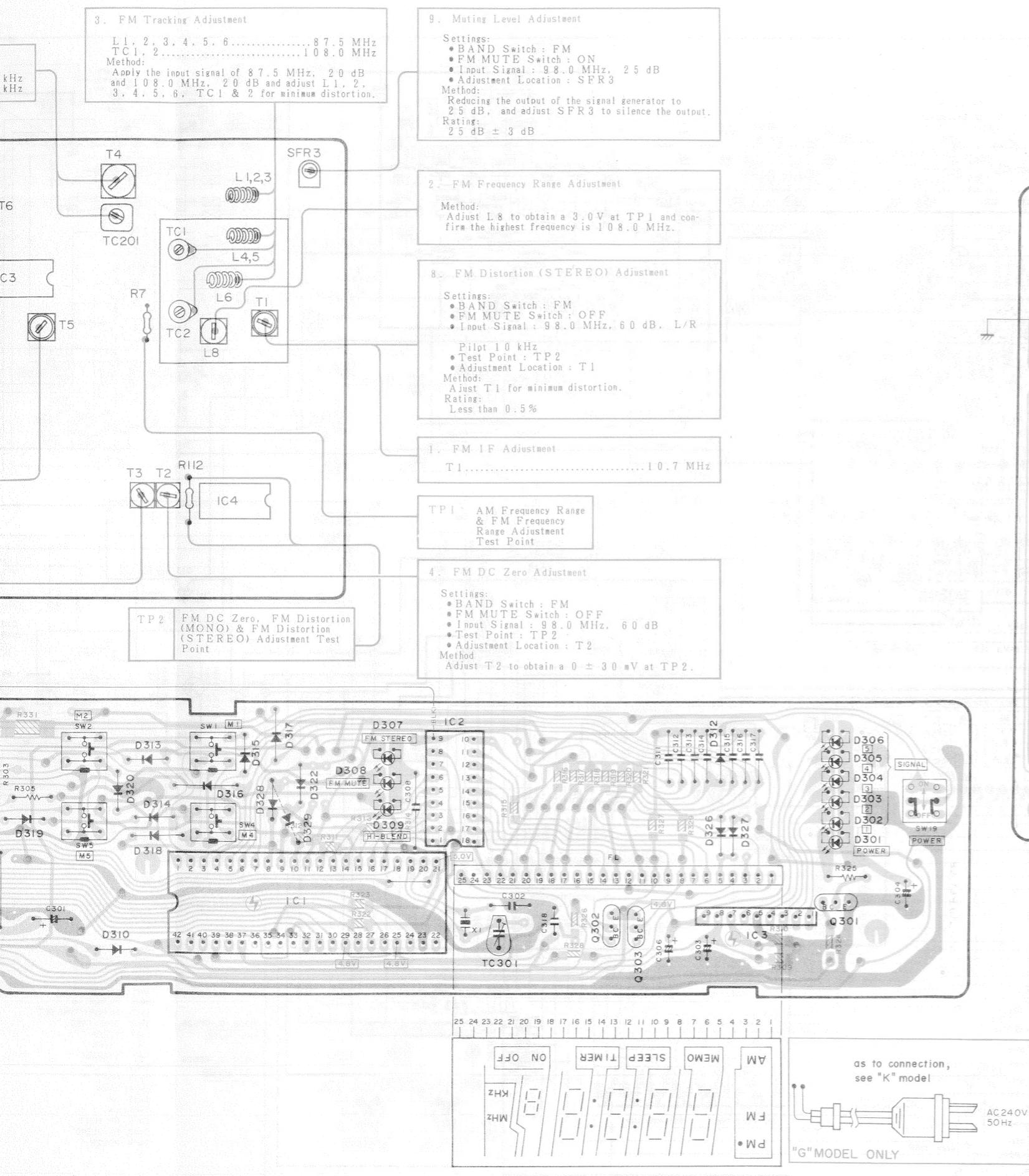
NOTES (1) Earth pattern Printed resistor pattern Component side pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
 But () is with AM reception.

The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (⊕).

WIRING (TX-110 H, U, G)



7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22



7

3

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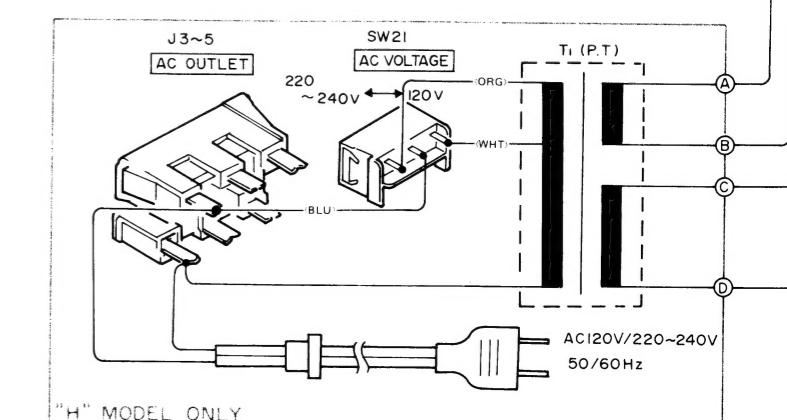
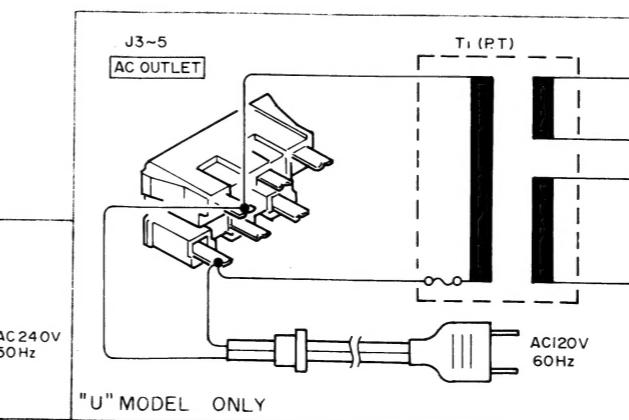
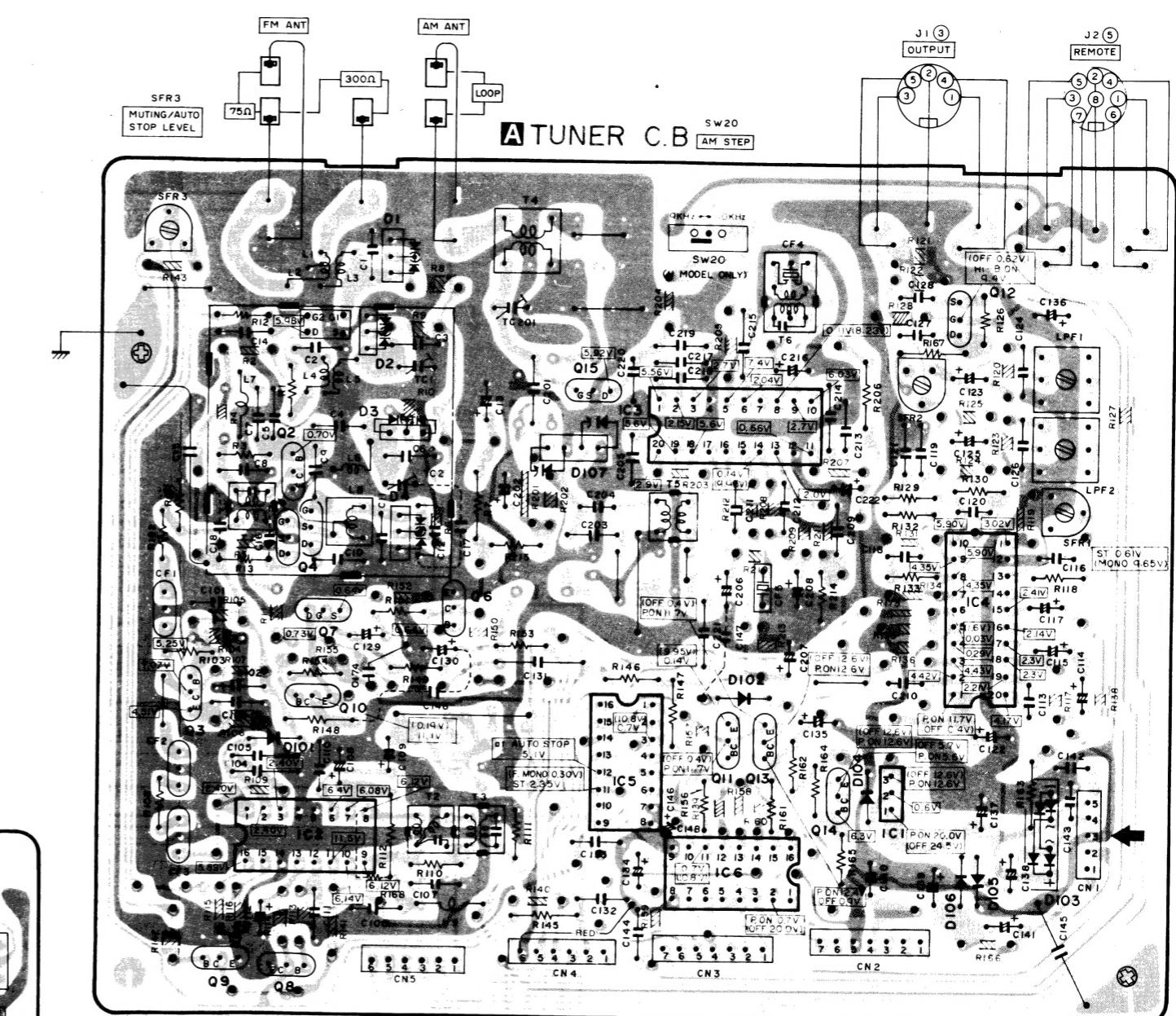
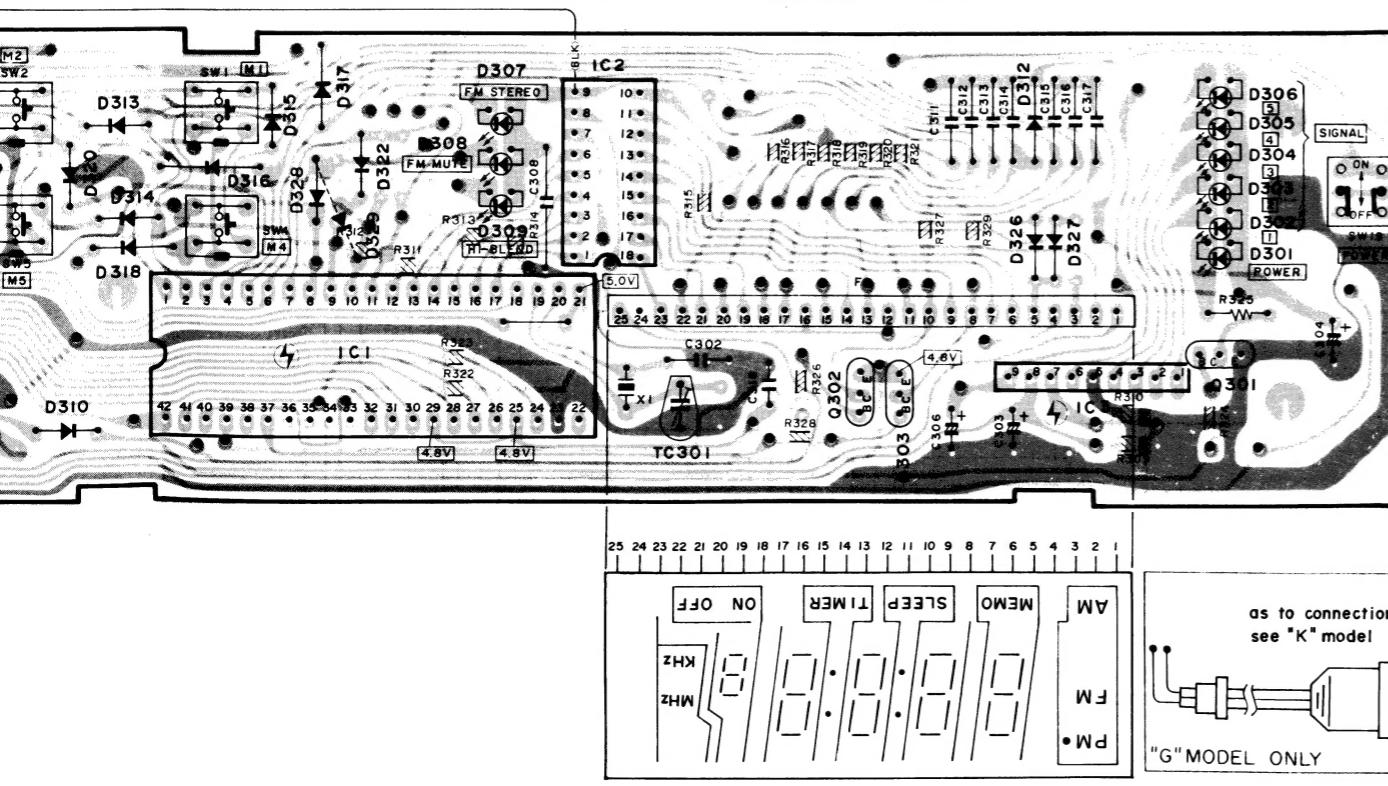
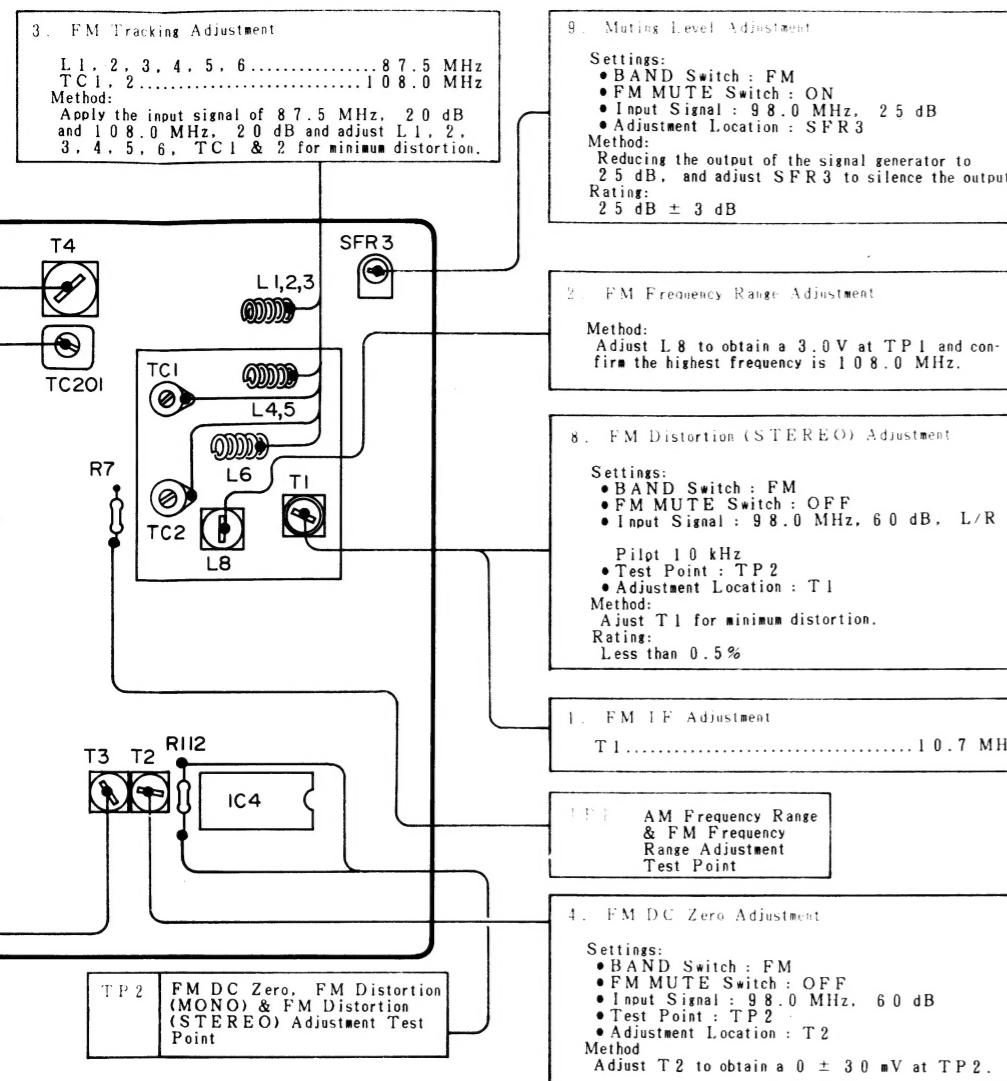
15

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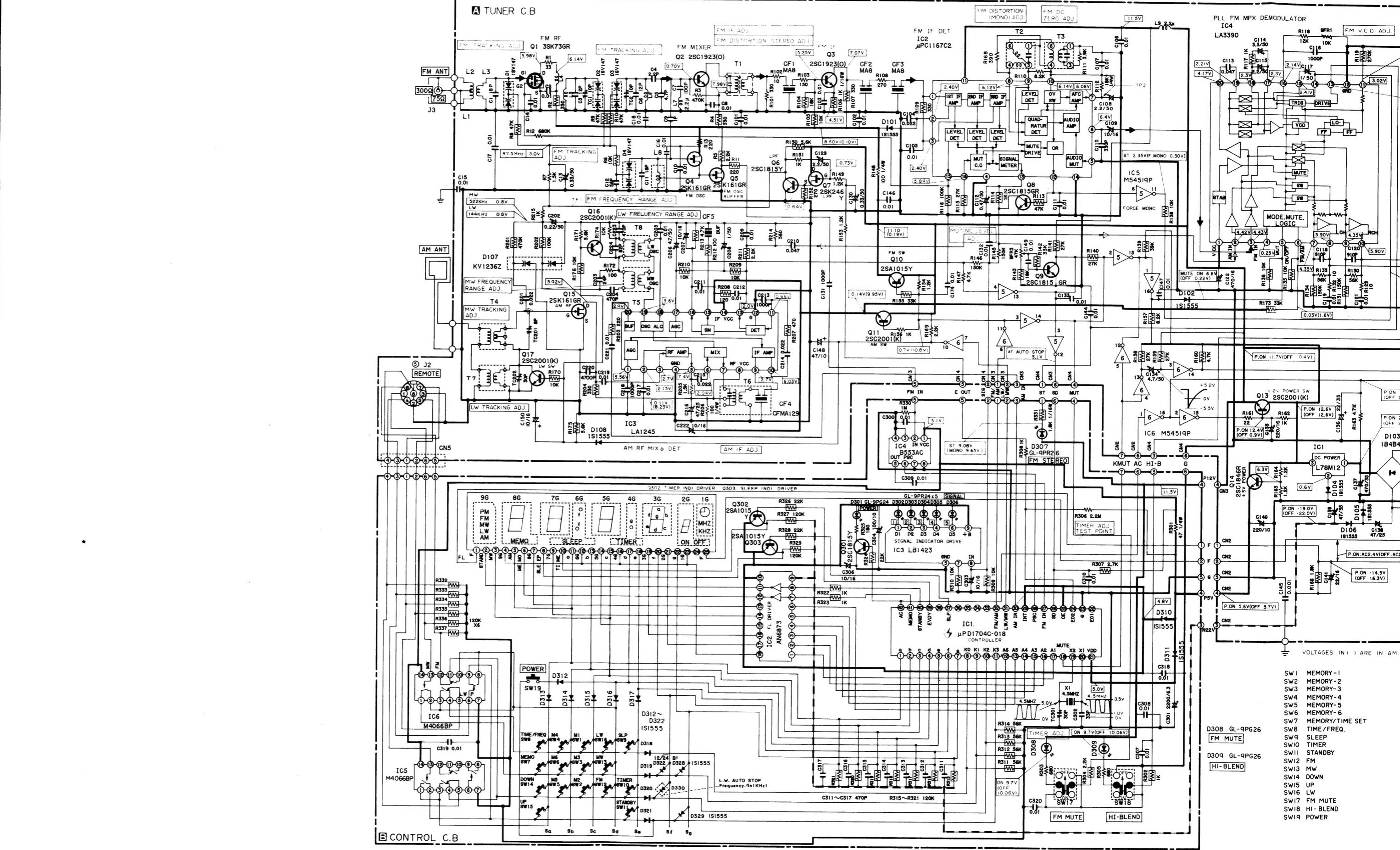
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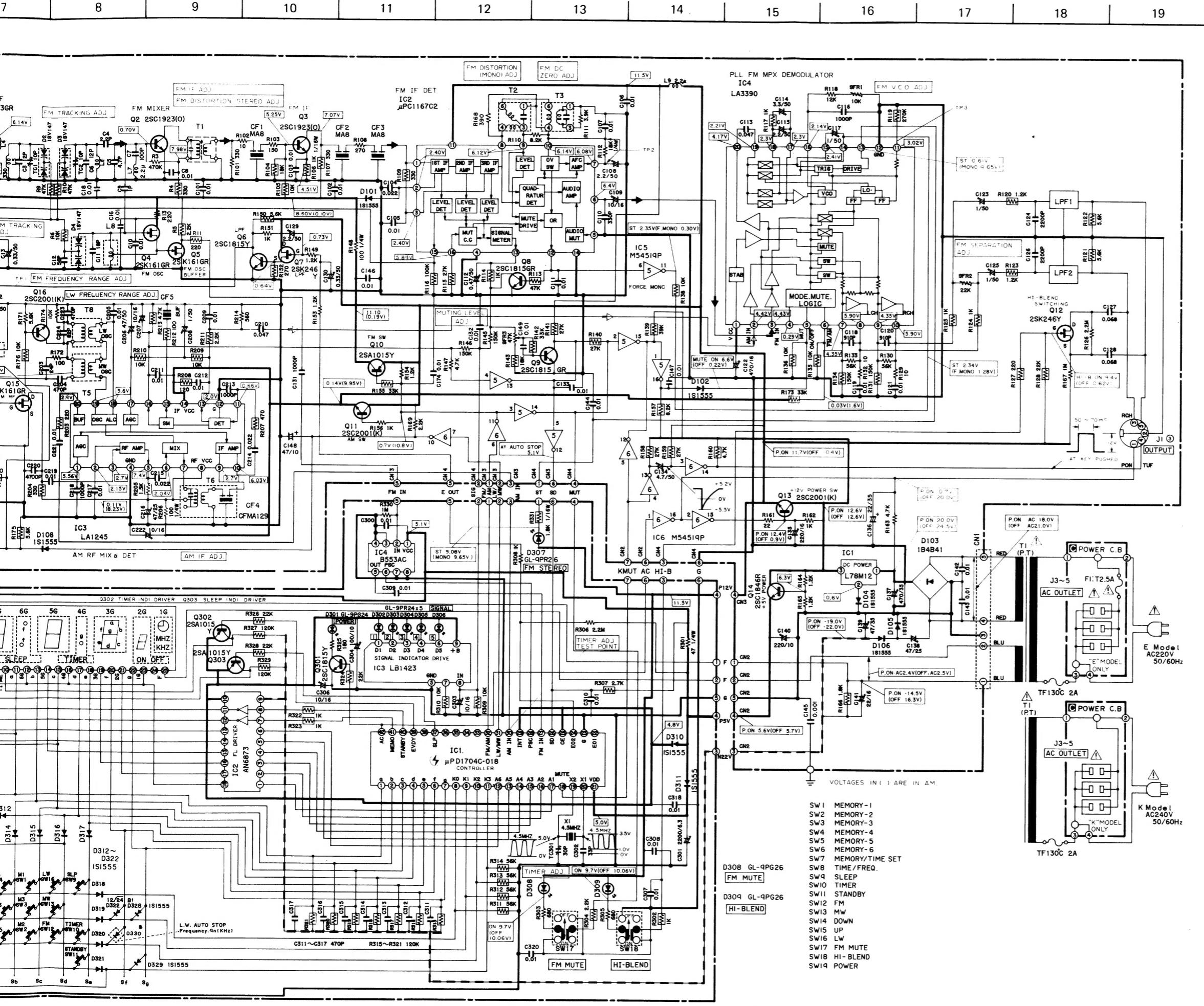


SCHEMATIC DIAGRAM (TX-110 E, K)

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

A





VOLTAGES IN () ARE IN AM
 SW1 MEMORY-1
 SW2 MEMORY-2
 SW3 MEMORY-3
 SW4 MEMORY-4
 SW5 MEMORY-5
 SW6 MEMORY-6
 SW7 MEMORY/TIME SET
 SW8 TIME/FREQ.
 SW9 SLEEP
 SW10 TIMER
 SW11 STANDBY
 SW12 FM
 SW13 MW
 SW14 DOWN
 SW15 UP
 SW16 LW
 SW17 FM MUTE
 SW18 HI-BLEND
 SW19 POWER

